

AMERICAN VETERINARY REVIEW.

EDITED BY

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AMERICAN VETERINARY REVIEW.

JULY, 1907.

EDITORIAL

EUROPEAN CHRONICLES.

PARIS, FRANCE, May 15, 1907.

MODES OF TUBERCULAR INFECTION.—It is not always that members of our sister profession, the human, are willing to acknowledge the help that, in their researches and discoveries, they have received at the hands of veterinarians; and on that account when one, and certainly one of the most prominent, does make such acknowledgment, the entire veterinary profession must bow with pleasure and pride. Dr. A. Calmette, the worthy director of the Pasteur Institute at Lille, who is a corresponding member of the Institute of France and of the Academy of Medicine of Paris, in an address which he delivered before a society of veterinarians, opened his remarks by saying: "If bacteriologists ever succeed in giving to humanity an efficacious method of vaccination against such a terrible scourge as tuberculosis, it will be due to their close and continued collaboration with veterinarians." The subject of the conference of Dr. Calmette was on the channels through which tubercular bacilli enter the organism and on the actual knowledge relating to antituberculous vaccination of bovines. After giving full recognition to the work done by veterinarians, Dr. Calmette passed to a brief history of tuberculosis: the general opinion that prevailed about its contagiousity among veterinarians and physicians, the affirmation of the duality of human and animal tuberculosis as expressed by Koch at the Congress of London in 1901, the series of experiments that were started in the Old and in the New World by Chauveau, Nocard, Thomassen, Bang,

Arloing, Ravenel, de Schweinitz and others, and finally the demonstrated evidence that there was *but one* tuberculosis of mammalia, but that the bacilli of bovine and man constituted only two distinct breeds of a same species, and that these breeds were created by the progressive adaptation to different organisms.

* * *

It is evident that this fact once established, a great step was made; but others remained, which were as essential to be solved. Among them, one has a great importance to the point of view of the measures that will be required in the prophylaxy of the disease, and that is the knowledge of the manner by which ordinarily tuberculous infection does occur, from animal to animal and from man to man; in other words, by what channel the virus is introduced into the tissues of an animal previously indemn. In human medicine, the majority of clinicians admit that, most generally, infection takes place by the dust carrying bacilli with the air taken into the lungs by inspiration. Since the experiments of Chauveau in 1868, veterinarians have had a tendency to incriminate, on the contrary, the contamination by the digestive tract. Of course, no one denies that in some cases, through preëxisting lesions of the skin, of the pharynx, of the larynx, or even the genital mucous membrane, the introduction of the virus could take place. But no one, among either veterinarians or physicians, has dared to say that pulmonary tuberculosis, *primitive* so called, or the characteristic tumefaction of the tracheo-bronchi or mediastinal glands, without pulmonary lesions, could be of intestinal origin. It is true that Behring had said that it might be possible for pulmonary tuberculosis of adults to be only a late manifestation of an intestinal infection contracted in youth. But, then, of what value were the experiments made previously, and especially those of Melun?

The question was still open, and it was then that Calmette and his assistant, Mr. Guérin, undertook their experiments, which showed them that: Pulmonary tuberculosis is not the

result of a slow evolution of intestinal infection contracted in youth; that at any time of their life animals can take tuberculosis by the intestines; that most generally with adults the tubercular infection of intestinal origin localized itself immediately to the lungs, while in young animals it remains for a time, more or less long, located in the mesenteric glands; that it is extremely difficult and even often impossible to realize experimental direct infection of the respiratory tracts, and therefore that it cannot be admitted that contagion by this channel is predominant; and, finally, that *in the normal condition of natural infection, the digestive canal is the principal door of entrance of tuberculosis.*

* * *

The second part of the conference related to the various methods of vaccination which have been more or less extensively experimented with, the author considering the Behring bovovaccine method and suggesting the possibility of a vaccination through the intestinal tract; he made the statement that young or adult bovines, which have taken per mouth a small quantity of bacilli, attenuated or modified by heat, did support afterwards with impunity the ingestion of surely fatal doses of virulent bacilli. Time, however, is necessary to bring those experiments to final conclusion. Let us wait!

* * *

However, while the knowledge of the channels through which tuberculous infection can take place is an important item in the prophylaxy of the disease, that of the infecting condition of the agents that may enter those channels is also interesting. It is in that direction that Prof. Cadéac, of Lyon, has carried out his recent researches, which are related in the *Journal of Zoötechnie* for February, 1907. There is not a single experimental fact proving the transmission of tuberculosis by the inhalation of dust coming from localities infected with the expectoration of tuberculous sputa. The respiratory channels are protected from the bacilli of dust because: First, pure dust, dried in obscurity, reaches but very seldom in sufficient massive

doses to transmit tuberculosis by inhalation ; second, dust from sputa dried by light is harmless ; third, dried sputa adhering to external surfaces form with mucine a kind of coating which prevents their floating in the atmospheric air ; fourth, dust of these sputa are certainly spread, divided earlier or later, crushed and mixed with others in such a manner that their virulency is reduced to nothing by desiccation or dispersion of the bacilli that may have remained virulent.

Therefore, theoretically and practically, dust is harmless for the respiratory tract. It is likewise for the digestive channel. A number of animals have been fed with dust from sputa, some with material which had dried in obscurity, and others with sputa dried by exposure to light in a laboratory. Out of nearly one hundred animals, only one presented at post-mortem a few granulations of very small size in the lungs and the liver. In all the others the result was negative.

Conclusions : Dust from the desiccation of tuberculous sputa can be considered as innocuous for both the digestive and the respiratory tracts, unless taken in very large doses. The Professor closes by saying : " The most terrific engines are harmless when sufficiently broken into pieces ; atoms are no longer of any account ; a cannon shot pulverized cannot kill a bird ; the bacillus of Koch, floating to all winds, is a tuberculous bacillus which does not tuberculize any more !! "

* * *

A TEST OF BOVOVACCINE BY THE ARGENTINE REPUBLIC.
—When the subject of tuberculosis is spoken of, one is bound to also hear of Bovovaccine ! The following is then in order :

An important step in the treatment and prevention of tuberculosis of bovines has just been taken by the Government of the Argentine Republic. Desirous of making his country benefit by new discoveries relating to the treatment of tuberculosis, the Secretary of Agriculture at Buenos Ayres authorized Prof. Lignières, when he was in Europe, to make the following offer to all those interested in the question : " The Government of the Republic offers to place at the disposal of all scientific

persons having an efficacious remedy against tuberculosis, and at their expense, all bovines reproducers of great value which have been imported from Europe and which are to be slaughtered as having reacted to tuberculin."

These animals, which in the average have cost \$2,000, and some of which as high as \$8,000 and \$10,000, are in appearance in perfect health; they are receiving the best of care and their tuberculous lesions are generally very small. If a treatment is to be good and ought to succeed, it will be with such animals evidently better than it would be with old, broken-down cows, poorly fed and with extensive lesions.

From all the gentlemen whom Prof. Lignières approached, whether in France, Germany, Italy or Belgium, only one accepted the offer; it was Prof. von Behring!!!

At first he consented to undertake the curative treatment only, but on second thought he insisted to test the value of Bovovaccine also. A long and binding contract has been drawn and a program prepared by Prof. Lignières, and adopted by the German scientist.

We shall endeavor to keep our readers posted as the experiment goes on, but it will be some time before the positive results shall be known, as the experiment will take three years before being completed.

* * *

TREATMENT OF TETANUS.—I have come across in the *Journal de Médecine* a review of the treatment used in human medicine against tetanus and I have thought to make extract from it, as a subject of comparative therapeutics, although on account of the prophylactic treatment, which veterinarians are resorting to so much to-day, acute cases of the disease are not so frequent.

The treatment of tetanus has a tendency to benefit considerably the new orientation of therapeutics. Up to lately it was entirely symptomatic: the patient was relieved by reduction of the excitability of its nervous system. And it must be acknowledged that this method has often given very satisfactory results,

and even in our day it is put in practice with what modern knowledge has suggested to us.

Therefore, let us examine the generalities of several of the methods in vogue: (1) The symptomatic treatment, the oldest, but still resorted to; (2) the serotherapeutic treatment, only in its infancy; (3) the Bacelli treatment, and (4) that of Jaboulay.

(1). *Symptomatic Treatment*.—It must be applied as soon as the first signs of the disease are manifested. At any price, the excitability of the nervous system must be reduced, and all causes likely to stimulate it be removed. The individual shall be placed in a dark room; no unnecessary motion will be allowed; no noise must annoy him. By this quietness paroxysms may be prevented. The heroic drug to give then is chloral, in large doses. When given per mouth, it must be with plenty of water to avoid irritation of the stomach. Intravenous injections succeed no better than ingestion. Injections of morphine will increase the soporific action of the chloral.

* * *

(2). *Serotherapeutic Treatment*.—The discovery of the antitetanic serum is due to Behring and Kitasato. In 1890 these authors were working at the same time on diphtheria and tetanus. That was the beginning of the antitoxic sera. But if the value of the antidiphtheric serum was soon established, the same was not for the antitetanic serum. In 1893 Roux and Vaillard made known its true properties. Injected before the toxine, it prevents the production of tetanus. Injected at the same time or in the first hours following, it transforms a generalized tetanus into a local trouble. But injected at the end of the period of incubation or after the apparition of the contractions, it is absolutely useless. Since that epoch the question has not advanced one step. Intracerebral or subarachnoidian injections have been tried, but all the cases of recovery confirmed by serotherapy are subject to criticism. None is known that is not liable to be discussed.

It is now customary for surgeons to complete the dressing

of all wounds that have occurred in a suspected centre, such as a stable, a cow barn, a road where horse droppings are plentiful, with a preventive injection of antitetanic serum. The serum then must be very active and the injection renewed after two days, if the wound has a suspicious aspect.

For wounds less suspicious the serotherapeutic method has lately recommended the dry serum. Many surgeons complete their dressing with a careful dusting of powder of tetanic serum. This dried antitetanic serum in powder is well absorbed on the surface of the wounds and vaccinate against the microbe of Nicolaier. This serum keeps well in a dry preservation and is not altered with the high temperatures of tropical climates. It is very practical for application in country surgery. Especially does it find its indication in cases where the presence and influence of horses exist.

* * *

(3). *Bacelli's Treatment*.—Professor Bacelli recommends the injection under the skin of carbolic acid in a 2 or 3 per cent. solution. These injections must be done several times a day until the end of the disease. Each of the injections at first contained gr. 0.03 and gr. 0.04 of phenic acid. But lately these doses were found too small and now they are raised to gr. 0.10 and even more, up to gr. 0.50, and even 1 gram. They are not only well supported, but are truly efficacious. (These are doses for human beings.)

By this treatment the author claims that out of 200 cases the mortality has been only 10 per cent., while by all the other forms of treatment it has been of 30 per cent.

(4). *The Treatment of Jaboulay* consists in the use of muriate of betaine. One recovery is on record by the subcutaneous injection of this salt at the dose of 1 gram. Such is the *résumé* of the condition of this important question. The amputation of infected surfaces or regions and the sections of nerves are also ignored as absolutely useless.

* * *

EFFECTS OF X-RAYS UPON THE GENITAL GLANDS.—I have

read in the *Presse Medicale* and the *Semaine Vétérinaire* of a new mode of castration. It will certainly never be admitted in the general practice of veterinarians, but it is nevertheless worth knowing in a scientific point of view. It is due to the action of X-rays on the genital glands, which, it seems, is altogether very peculiar in the fact that they give rise to a cellular degeneration, which involves only some of the constituting elements of those organs: method which acts only upon the sexual elements and respects all the others. In other words, it produces the progressive disparition of the cells of spermatogenetic and ovogenetic elements and does not touch those of the struma itself.

This observation is relatively recent. It was towards the end of the year 1903 that the first researches of the action of the X-rays upon the testicle were studied by Albert Schonberg, and it was in 1905 that Halberstaedter published the first work relating to the ovary submitted to the same experiment. The results of the experiments have since been confirmed for the testicle and also for the ovary. Indeed, it results from those experiments that the X-rays destroy in the male the fecundating power and in the female the possibility of being fecundated. These subjects have given rise to much discussion among scientific organizations. In males, the application of the X-rays upon the testicles has for result only the loss of the fecundating power, while in the female, on the contrary, the application of the X-rays upon the genital glands is followed by all the signs accompanying castration.

* * *

Let us examine facts which show why this difference does exist. Males that have received X-rays on their testicles lose their fecundating power, but, contrary to those that have been castrated, they conserve their genital activity. Rabbits and guinea-pigs thus treated by Schonberg have been unable to fecundate, but they would frequently cover females—at least mount them. The same was observed by Villemin. The results observed in man are absolutely identical. Numerous ob-

servations exist of radiographs that have become sterile, and yet had no diminution in their genesic power. Sick individuals submitted to the rays with a therapeutic object have become sterile without any other modifications of their sexual glands. Males that have been submitted to the X-rays have no atrophy of the genital tract (penis, vesicula seminalis, prostate, Cowper's glands), which is contrary to that which is observed in castrated males. Villemin has observed that, instead of an atrophy, the genital tract would remain as well developed in animals experimented upon as in the witnesses. Therefore, the sexual characters and the genital activity are not influenced by the lesions created in the testicles by exposition to the X-rays, whether in man or in animals. This is easily explained by remembering that the testicle is not constituted only by the seminal gland, but contains another—the interstitial gland, situated between the seminiferous canals: it is the gland of internal secretion of the testicle, and it is this that keeps under its control the sexual characters and the genital activity. As it is not destroyed by the X-rays and keeps all its morphological and functional integrity, it is natural that nothing abnormal should be observed towards the sexual characters or the genital activity of individuals having testicles that have stood X-ray exposure.

Although the action of the X-rays upon ovaries are not so well known, it is nevertheless well demonstrated that the oocytes and the follicles disappear from ovaries that have been exposed to the X-rays, and, besides, observation has shown that animals having such ovaries did not come in heat any more; that their genital tract would atrophy, that their clitoris would reduce—in other words, these animals would present all the transformations that are noticed in castrated animals.

* * *

To resume, the effects of the application of the X-rays are:

(1). A local action which is manifested as follows: For the testicle, disparition of the seminal gland and preservation of the interstitial gland. For the ovaries, disparition of both glands, sexual and internal.

(2). A repercussion upon the organism from the lesions produced by the X-rays upon the genital glands: In the testicle, loss of the fecundating power with preservation of the genital activity and of the sexual characters. In the ovaries, loss of the fecundity and apparition of all the signs following castration.

* * *

“PROCEEDINGS” OF THE A. V. M. A.—The “proceedings” of the 43d annual meeting of the American Veterinary Medical Association reached me some time ago. It was not because I took advantage of its arrival to send our readers some remarks on the State Boards of Veterinary Examiners, that I must neglect it and refuse it the honors that are due it. Its contents deserve more than the notice I gave of it last month, and I should fail in my duties by not calling attention to this excellent publication and to the work of its editor, C. J. Marshall, V. M. D., chairman of the Publication Committee.

The picture of President W. H. Lowe, which illustrates the book, is a good one, and I was very glad to receive it. It reminded me of the days when he was a student with me—now 20 years ago. How time flies!

Of course, next comes the ordinary lists of names of the officers of the Association, names of the members of the committees, of the Resident Secretaries; then the Constitution and By-laws, to be followed by the various addresses. After these come the many reports of the committees. They begin at page 35 and end on page 163.

The good information to be found in these reports it is impossible to review; it would take too much room. But the stock is immense; any one searching will find something of great interest in them. Besides what I have already recorded, I see a very interesting statement in one of them. I take it from the Resident Secretary of Illinois, Prof. L. A. Merillat. Indeed, at page 73, speaking of veterinary colleges, he said: “I know of instances wherein men have been granted diplomas without ever having attended school at all, of several men who

graduated after having attended only three months, and of many who have been so honored (?) with six months' work.

"If an applicant for admission has been a dentist, if he has attended a year at a medical college, or a dental or a pharmaceutical college, or if he can present any excuse whatever, he is admitted to advanced standing. . . ." Who would believe it? But I certainly endorse Prof. Merillat when he exclaims, further on: ". . . but I do believe that if this association had the courage of its convictions, the situation might be improved at once." Will the Association be brave and have the courage?

The report of the Committee on Intelligence and Education covers 40 pages of the book and its recommendations are of exceeding great value. No doubt they will be listened to and acted upon at the next meeting.

The papers and discussions of the meeting are all of great interest and their authors deserve many thanks for their efforts and for their work. The papers of Dr. C. H. Jewell on the "U. S. Army Veterinary Service" is unusually valuable, the notes on "Surgical Relief of Roaring" by Prof. W. L. Williams, the various articles on "Glanders," and those on its "Diagnosis," by Drs. V. A. Moore, W. J. Taylor, Ward Giltner, by G. H. Berns, by J. G. Rutherford, the article on "Tuberculosis of Swine" by Richard Ebbitt, the remarks on "Rabies" by Dr. A. Loir, all will be read with interest. I am sure that our friend W. H. Dalrymple with his article on "Our Insect Enemies" will occupy the attention of many readers and that the "Possible Dissemination of Tuberculosis Bacilli by Insects" by Dr. Samuel E. Weber, will certainly complete Dalrymple's communication.

Well, there are many other subjects which coöperate to make of this book a most valuable one. I only wish I could speak of all. The best thing for all veterinarians, whoever they are, is to get the work. Dr. Lyman will no doubt be very glad if the entire edition is gone by the next meeting. It ought to be!

THE "VETERINARY ENCYCLOPEDIA" OF PROF. CADÉAC has just been enlarged by the addition of a new volume, entitled "Anatomie Pathologique et Practique des Autopsies" (Pathological Anatomy and Technic of Post-mortems). It is a book of nearly 500 pages, with 100 illustrations, sold by the house of J. B. Bailliere, the publishers of the entire Encyclopædia.

This volume has been written by Prof. V. Ball and Prof. C. Cadéac. The former has done the principal part of the work, having treated the part of the technic of the post-mortems and of the general pathological anatomy; the chapter on morbid processes, on the prophylaxy and curative treatment of diseases are considered by the latter.

The technic of post-mortems is comparatively short. It covers the manipulations demanded in the examination of all domestic animals—solipeds, large and small ruminants, dogs and cats, as well as birds. There is at the end a good guide for the redaction of a report on the autopsy.

The part that treats of the general pathological anatomy is also concise, of course in the spirit of an encyclopædia. But, nevertheless, the various degenerations, hyperplasia, hypertrophy, atrophy, are sufficiently considered and completed by the morbid processes, the inflammatory neoformations and the tumors.

The last portion of the book is occupied by the treatment of diseases, when the author has presented the general principles of prophylaxy, hygienic means, asepsy, antisepsy, vaccination, curative therapeutics, with the medication against causes, that of symptoms and lesions.

The publication continues and the field of its usefulness is constantly enlarging.

* * *

PAMPHLETS RECEIVED.—A few words now to complete my bibliographic notices.

I have on my desk quite a number of pamphlets sent to me, or which I owe a thankful acknowledgment.

The Bureau of Animal Industry comes in for a good share,

with the "Report of the Chief" for the year 1906, by Dr. A. D. Melvin, with Circular 101 relating to the new meat inspection law and its bearing upon the production and handling of meats, by G. P. McCabe, with Bulletin No. 93 upon the relation of tuberculous lesions and the mode of infection by Drs. E. C. Schroeder and W. E. Cotton, and finally with Circular 102 on the "Stomach Worms in Sheep" by B. H. Ransom.

I have received also the regulations relating to animal quarantine in Canada with ministerial orders, two Italian pamphlets by Dr. Antonio Pirocchi, one entitled "Il Late Scremato Nell' Alimentazione Dei Vitelli" (The alimentation of calves with skimmed milk), and the other "Altre Esperienze Sulla Durata Della Digestione Nei Bovini" (Upon the duration of digestion in bovines).

The January issue of the *Transvaal Agricultural Journal*, Bulletins from the Chicago Veterinary College, Journal of the McKillip Veterinary College, a story on a new scourge of modern Egypt or arsenic poisoning of cattle for revenging, by J. B. Piot-Bey, complete the series of the souvenirs on hand and for which I address my thanks to the senders.

A. L.

THE EDUCATIONAL QUESTION AT KANSAS CITY.

Elsewhere will be found a preliminary announcement of the literary program to be offered at the forty-fourth annual meeting of the American Veterinary Medical Association, which will convene at Kansas City on September 10, and continue for four days. There are given in the list of papers to be presented, twenty-three subjects by as many well-known veterinarians, scattered over the American Continent and even invading that of Europe. Every phase of professional work is represented, as well as some of the questions of policy which are pressing for consideration. Of paramount importance is the subject of education and the regulation of its teaching in the various schools. While there is not one who does not admit the necessity of greater uniformity among the colleges in

the matters of entrance requirements, curricula, and length of term, there has not yet appeared an individual who has formulated a practical system by which these reforms can be brought about. In the confederation of states constituting the American Union, the National Congress cannot promulgate laws which will take away from the separate commonwealths the right to regulate their own educational institutions. Therefore, the standard of veterinary education must forever, so far as laws are concerned, be the composite result of the judgment and wishes of many and varied legal bodies.

The unifying influence must come from within the profession, through mutual agreement, and by whatever power can be exercised by such representative organizations as the A. V. M. A. and the Association of Faculties and Examining Boards.

The initial step to wield this influence and power was taken at Cleveland in 1905, when the latter association was reorganized for this express purpose. For two years the path had been blazed in the addresses of Presidents Stewart and Bell at the openings of the annual conventions of the A. V. M. A., the latter official making recommendations which resulted in the active work of accomplishment. The plan was briefly to work through a harmonizing of all interests and by mutual agreement to establish a minimum standard to which all schools should bind themselves to conform. This was to be worked out through committees representing every element concerned in the cause of education, and it is ardently hoped that if the question is approached with earnestness, and with a mutual desire to bring about true reform, much may be accomplished. President Law has appointed a committee of three from the body of the A. V. M. A., not one of whom is connected with any school, and to confer and work with them President Hoskins, of the Faculties and Examining Boards Association, has named three committees of three each, consisting of representatives of the state colleges, of the private schools, and of the examining boards. It is conceded that unless there is a concerted endeavor to bring about unicity in the regulation of the

educational institutions, little can be done by force; that the only power that can be exerted lies in the agreement of the Examiners to recognize for licensing only those schools which conform to the minimum requirements agreed upon by this amalgamated organization, and by the A. V. M. A. in its right to accept as members only graduates of such schools. These two powerful agencies can be exerted with telling effect, if a standard of requirements can be agreed upon. This can and should be done at Kansas City.

The second step toward carrying out the object of the movement was taken at New Haven last August, when eight schools (all which had representatives present) agreed to keep a record of all the facts connected with the matriculation of students for the session of 1906-07 and present them for inspection at the Kansas City meeting of the Faculties Association, while the Secretary was instructed by vote to correspond with all the other schools to solicit similar coöperation. When these facts are given to the conference there may then be opened up a means of raising the requirements at points where they are deficient; and when once all schools agree to a minimum standard, a working basis will have been created whereby the Examining Boards and the A. V. M. A. will have authority to put their power into operation. The changes should not be radical, but every year there should be a distinct advance toward a higher and a more uniform standard, to the end that an American veterinary diploma may be of definite quality, and finally reciprocity among all the states in the matter of recognizing the licenses granted by the various Boards.

ACCOMPLISHMENTS IN PENNSYLVANIA.

In the course of a review of the benefits secured by the veterinary profession in various sections of the North American Continent during the past session of the law-making bodies, in the June number of the REVIEW, the situation in the Keystone State was briefly summarized by saying that "the profession asked for a great deal and it was most liberally dealt

with." While this broad statement is comprehensive and strictly true, the actual accomplishments of the profession of that state are so wonderful as to be worthy of more than that passing notice; and we have secured from one of the most indefatigable of her workers, Dr. W. Horace Hoskins, an enumeration of the most remarkable legislative record in the history of the profession in this country, if not in the world. It emphasizes the fact that in unity there is strength, for the veterinarians of Pennsylvania acted in perfect harmony and stood as a solid phalanx in their insistence upon the justice of their claims, working in season and out of season, following up every possible avenue of strength, and never resting until the executive signature was affixed to each measure. The whole constitutes an object lesson which should be an inspiration to the profession everywhere. Under the irresistible leadership of Leonard Pearson, ably assisted by her strongest men, and supported by the entire profession of the state, nothing was deemed impossible, and the campaign of education and argument was carried on from the assembling of the Legislature until its adjournment.

Dr. Hoskins' summary of the year's results before the Legislature is as follows:

"The bill for \$100,000 for the Veterinary Department of the University for additional buildings passed both houses; the State Livestock Sanitary Board secured \$135,000 in the general appropriation bill and also \$29,000 for additional land for the State Farm and maintenance of the work under way; a Deputy State Veterinarian with a salary of \$2100; a clerk at \$1200 and stenographer at \$900 and \$100 per month for traveling expenses; a stallion service inspection bill with \$3500 to carry out its purposes; \$68,000 for meat inspection service with ten veterinary meat inspectors at \$1800 per year each. The amendment to our veterinary law was vetoed by the Governor, which was not the least of our accomplishments. We have fought a hundred obstacles, and gained about everything we really sought."

FEEDING THE DUPES.

The Veterinary Correspondence School of London, Ontario, has adopted a new method of coaxing dollars from the pockets of its dupes. Instead of giving a course of correspondence lectures and issuing a "diploma," it offers to sell books on special operations. Thus it advertises to send for five dollars a book containing a lecture on castration, guaranteeing that the purchaser will be able to perform the operation on original or "rig" horses better than most veterinary surgeons. For another five dollars "The Veterinary Obstetrical Compendium" will be forwarded, so that its possessor may make money through his ability to deliver domestic animals when dystokial troubles occur. Now that our Canadian brethren have raised veterinary education in the Dominion to a high plane, cannot a law be secured to put this "mill" in limbo?

A HIGH DEATH RATE among foals is reported from many parts of the country, and it is feared that the 1907 crop, which promised to be the largest in history, is doomed to be below the average.

"DID not receive May number, and think you must have cut me off. Don't. I may be negligent, but am not blind enough to my own interests to want to stop the REVIEW."—(J. W. Corrigan, *D. V. M., Batavia, N. Y.*)

Two valuable reprints from the annual report of the New York Zoölogical Society are by W. Reid Blair, D. V. S., Pathologist of the Society, and are entitled "Actinomycosis in the Black Mountain Sheep," and "A Peculiar Skin Disease in an Elephant."

A ST. LOUIS SUBSCRIBER states that a man named Hayward took his subscription for the REVIEW and an English journal, charging him four dollars for the two papers for one year. It is needless to state that the publishers had not authorized this, nor did they receive any money or other word from "Hayward." The REVIEW has so frequently plainly stated that it does not "club" with any other publication, and that the subscription price is uniformly the same to all, that the wonder is that any of its readers should be swindled in this way. Whenever any one offers to take a subscription for less than the advertised price, he may be written down as a swindler.

ORIGINAL ARTICLES.

TUBERCULOSIS: THE MODE OF INFECTION AND THE COW.

BY E. C. SCHROEDER, M. D. V.,

Superintendent of the Bureau of Animal Industry Experiment Station at Bethesda, Md.

Read before the April Meeting of the Veterinary Medical Association of the District of Columbia.

Investigations, both at home and abroad, have given results that discredit the commonly accepted theory that pulmonary tuberculosis is a disease caused by the inhalation of air in which dust that contains tubercle bacilli is suspended.

If it can be conclusively shown that dust is not an important factor in the dissemination of tuberculosis; that the danger from dried, pulverized, tuberculous sputa has been taken for granted and exaggerated and has not been proven, and that tuberculosis, irrespective of its location in the body, pulmonary or the most frequently occurring form included, is caused by the entrance of the infecting agent through the digestive tract, it will be an achievement of incalculable importance because of the corrective influence it will exercise on the strenuous fight against tuberculosis that is in progress to-day in most civilized countries of the world.

Let us examine some of the evidence:—The infection of the pulmonary tissue directly through inhalation of air in which infectious dust is suspended, on superficial view, seems like a simple and reasonable way to account for lung diseases of various kinds, but it has the quality of a severe criticism of nature. It means that no satisfactory provision has been made for the protection of a very important organ against dangers to which it is constantly exposed. I do not believe that nature has been as delinquent as this easy and comfortable mode of pulmonary infection implies.

On its way to the lung the air moves through moist-walled,

indirect passages. After it has penetrated as far as the larger bronchial tubes its continued motion is due less to the impetus given it by the expansion of the thoracic cavity through muscular action than to gradual diffusion. This diffusion conforms to the law of the diffusion of gases, and depends upon the difference in the density of the freshly inspired air, which is practically free from carbon-dioxide, and the air already in the lung, which contains a larger volume of the named, heavier and denser gas. It is probably aided by the elasticity of the pulmonary tissue.

It is a law of physics that the force required to deflect a moving body from its path is proportioned to its weight and velocity. Hence, if a light fluid like air, holding relatively much heavier particles like dust in suspension, moves through a curved or indirect passage, the force required to change the direction of the air, or to deflect it from its course, will be much less than that required to deflect, or change the direction of the heavier particles or dust. The air will turn the curves in the passage more readily than the solid particles, and the latter will be thrown with direct force, the measure of which depends upon their velocity and greater specific gravity, towards or against the walls of the passage at or near its deviation from a straight course. This is precisely what occurs in the air-passages when air that holds dust in suspension is inspired.

When dust is thrown against the moist walls of the air-passages its progress towards the lung is stopped, because no current of air is strong enough to detach dust from a moist surface. If some particles should happen to penetrate as far as the trachea or larger bronchial tubes, where the air is almost stationary and the completion of the respiratory process depends upon diffusion, they would rapidly gravitate and be deposited on the ciliated epithelium which lines the trachea and bronchial tubes. Solid substances can be held in suspension in a fluid of lower specific gravity only when the fluid is in motion and a sufficient amount of friction to overcome their higher specific gravity is thus brought to bear on their surfaces. Once a substance is de-

posited on the ciliated epithelium of the air tubes its return to a region from which it will be coughed up and either expectorated or swallowed is assured, and its penetration to greater depths effectually opposed.

In an interesting paper entitled "Man's Natural Protective Agencies Against Tuberculosis," read at a meeting of the Tri-State Medical Association of Alabama, Georgia and Tennessee in October, 1906, by Dr. Silvia Von Ruck*, we have the following passages:

"The function of the nose especially in filtering the inspired air is practically perfect." "As the air enters the nasal vestibules large particles of dust carried by it are arrested by the vibrissæ and the direction of the inspiratory current is such that fine particles and bacteria are drawn immediately against and deposited upon the moist surface of the anterior portion of the septum." "Here the greater part remains adherent, while further deposition occurs as the current continues on its way through the intricate and mucous coated nasal passages to the nasopharynx." "At this point the inspiratory blast is deflected at a sharp angle against the upper portion of the posterior wall of the pharynx, which again conditions the deposit of particles still in suspension." "Thus in ordinary atmospheres the air reaches the larynx practically free from dust and microorganisms."

Dr. Von Ruck gives good authority for making these statements, which is really more than their self-evident character necessitates. With reference to mouth breathing he says, "Nevertheless, only a small part of the dust inhaled enters the trachea, Kayser having shown that most of it remains on the tongue and soft palate."

The anatomical and physical reasons against the theory that the lung becomes affected with tuberculosis or other germ diseases directly through the inhalation of infected air seem to justify us in throwing it out as an unqualified assumption, but they do not stand alone as arguments.

* *New York Medical Record*, Nov. 17, 1906.

In November, 1901, Prof. Dr. P. Baumgarten* in Tübingen pointed out that the inhalation theory to account for tuberculosis of the lung stands on such weak feet that we cannot say a single case of pulmonary phthisis has been traced with certainty to the natural inhalation of the specific bacillus. In his experiments he produced tuberculosis of the lung in animals by infecting them through the uninjured walls of the urethra and urinary bladder, and demonstrated that the localization of tuberculous lesions in the apices of the lung was no argument for the inhalation theory, as this was also the favorite seat of the affection when the bacilli reached the lung through the blood stream. While Baumgarten says that he does not wish to antagonize the inhalation theory, he concludes that it has been given too much importance and that it has not been proven to be the exclusive or even the most important mode of infection. In support of this view he quotes the work of Ribbert, Aufrecht and Weigert and Ponfick, whose investigations and analyses of the question speak strongly for the hematic introduction of the bacilli into the pulmonary tissue.

While Flügge has proven the danger of infection in the environment of tuberculous subjects affected with so-called open tuberculosis by showing that they expel, during cough or even during speech, minute particles of fluid that contain fresh, virulent tubercle bacilli and remain suspended in the air for some time, Cadéac† has shown that the danger from dried, pulverized, tuberculous sputa has been greatly over estimated. The latter investigator, as was pointed out in B. A. I. Bulletin No. 93, found on investigation that tuberculous sputa lost their infectiousness very rapidly, dried slowly, and were difficult to pulverize. Dust ground from tuberculous sputa he declares to be harmless both to the digestive and respiratory tract.

Among the investigations that have supplied a foundation for the dust hypothesis those of Cornet are of first rank. In speaking of them Flügge‡ says: "To establish that dust is in-

* *Wiener Med. Wochens.*, Vol. 51, No. 44, pp. 2049 to 2052.

† *Le Bulletin Médical*, Sept. 5, 1906.

‡ *Zeitschrift für Hygiene*, Vol. 38, p. 4.

fectious it is necessary to be certain that such dust alone is gathered for tests which reached the location from which it is taken by transport through the air as dust, because in this way only can we know that we are dealing with material that can float in the air." From this point of view, Flügge continues: "Cornet's investigations of the tuberculous infectiousness of dust have little value, as he invariably used wet sponges to collect the material he examined and with them rubbed off adherent particles which had not been transported through and were not at all capable of floating in the air."

Heymann* showed that dust from dried sputum is comparatively coarse and endowed with brief infectivity. This coarseness would also prevent its ready transportation through, and long suspension in the air. He repeated the work of Cornet, but tried to avoid the errors of the latter by using dry brushes in the place of wet sponges to collect the dust. His results show that in neglected rooms inhabited by phthisical persons and in sanatoria containing many consumptives, virulent tubercle bacilli in dust capable of air transportation are comparatively rare.†

Jousett‡ found that guinea-pigs inoculated with sputum that had been exposed to sunlight or even diffuse daylight either remained well or succumbed to tuberculosis very slowly, thus showing that light has a powerful attenuating and sterilizing effect on tubercle bacilli. Sunlight probably is the most potent natural agent for destroying tuberculous infection, and it is aided by drying and pulverization because by that means the bacilli are more directly exposed to light in an unprotected or uncovered way.

Dr. A. Di Donna§, in an article in which he describes investigations made at the Hygienic Institute of the Royal University of Naples, regarding immunization with anthrax and tubercle bacilli that were attenuated by exposure to sunlight,

* Editorial in the *Jour. Amer. Med. Asso.*, Oct. 12, 1901.

† *Zeitschrift für Hygiene*, Vol. 38, p. 4.

‡ *Weiner Med. Wochens.*, 1901, No. 28, p. 1366. (*Soc. de Biol.*, Oct. 27, '01).

§ *Centralb. für Bact. und Parasitenk.*, Vol. XLII, No. 7.

gives us the following information: "If a tubercle culture is exposed to sunlight from 9 A. M. till sunset for 8 days it has become sterile. This is true for the months of June to October inclusive. A culture exposed 6 days occasionally causes tuberculosis on injection of guinea-pigs. A culture exposed 6 days late in the fall or in winter, while it is greatly attenuated, always causes tuberculosis when inoculated into guinea-pigs."

To further show the significance of sunlight and drying as a factor for the destruction of tubercle bacilli I will read you a literal translation of the paragraph with which Dr. Di Donna immediately follows the foregoing statement of results obtained with his experiments:

"My results vary somewhat from those which Koch incidentally stated in the interesting communication at the International Medical Congress in Berlin in 1890 regarding bacteriological examinations of the tubercle bacillus, in that he (Koch) found that a culture exposed to diffuse light at a window was killed in 5 to 7 days. Also Migneco reached somewhat different results. But as Koch rightly remarked at that time tubercle bacilli were killed within a few minutes or a few hours according to the thickness of the layer in which they were subjected to sunlight*."

In connection with these assertions of Koch it must be borne in mind that his fame was not as universal in 1890 as later in 1901 when he made his address before the British Tuberculosis Congress, in which he declared against the identity of human and bovine tuberculosis on wholly insufficient and unsatisfactory evidence. At the earlier date he was still a man of whom it was required that his conclusions should be based on and be in harmony with unimpeachable evidence.

It is surprising how little use has been made of data that has long been available to show the low importance of dried and pulverized sputa as an agent for transmitting tuberculosis.

The difficulties in the way of the respiratory theory are

* *Centralb. für Bact. und Parasitenk.*, XLII, No. 7, p. 645.

truly great; excepting in the immediate environment of tuberculous subjects, it is practically a case of no infection to breathe and no way to breathe it. The theory falls when we examine the respiratory mechanism and the natural laws that control the respiratory processes, and it likewise falls when we learn what happens to the infectiousness of tuberculous material when it is subjected to the drying and pulverization which must precede its suspension in the air.

The fact that tuberculosis is a disease, the infectious agent of which enters the body through the intestinal canal, is receiving constantly increasing support. One thing that has stood in the way of its acceptance is the assumption that tubercle bacilli cannot pass through the intestinal wall and lymph glands without causing tuberculous lesions. This assumption has been refuted by the investigations published by Cotton and myself in B. A. I. Bulletins Nos. 86 and 93, and by Mohler and myself in Bulletin No. 88. The evidence given in these bulletins is perfectly supported by that of investigators like Ravenel, Nicolas and Descos, Nocard, Dobroklonski, Desoubry and Porcher, Calmette and Guerin, Schloszmann and Engle, Vallée, Rabinowitsch and others.

In a paper read before the American Public Health Association in 1903, Dr. M. P. Ravenel,* of Pa., draws the conclusion "that it is fallacious and misleading to claim that food tuberculosis should show itself in a primary intestinal lesion." This is supported on an experiment in which he fed ten healthy dogs once each with an emulsion of melted butter and warm water that contained numerous tubercle bacilli. The dogs were first purged with castor oil and made to fast 24 hours and then fed the emulsion through a stomach tube. They were killed about four hours later and their mesenteric glands removed and as much chyle as possible collected, and when this material was tested for the presence of tubercle bacilli, microscopic examination gave positive results for three, and guinea-pig inoculation for eight dogs. The two dogs with

* *Journal of Medical Research*, Vol. X, pp. 460-462.

which the results were negative received much less virulent tubercle bacilli than the others. A very careful examination of the intestines of the dogs was made, including microscopic examinations of sections cut from the intestines of two dogs, but no lesions were discovered.

Nicolas and Descos* in 1902, with experiments somewhat like those of Ravenel, proved that tubercle bacilli fed to dogs in soup occurred three hours afterwards in their chyle vessels and thoracic duct in sufficient numbers and of sufficient virulence to cause tuberculosis in guinea-pigs.

Ravenel refers to this work of Nicolas and Descos, and both he and they refer to the fact that Dobroklonski† showed as early as 1890 that tubercle bacilli after short contact may penetrate the intestinal wall of guinea-pigs without demonstrable lesions, and that Desoubry and Porcher,‡ students of Nocard, proved in 1895 that bacteria are carried through the intestinal wall of dogs during digestion of fat so that they can be detected in the chyle by plate cultures.

Primary intestinal tuberculosis is of rare occurrence. Dr. Koch made use of the fact as an argument against the infectiousness of milk from tuberculous cows for man.

No one can reasonably doubt that swallowed tubercle bacilli will shortly reach the lung if they can pass through the healthy wall of the intestine and reach the thoracic duct three hours after they entered the stomach. The contents of the thoracic duct are poured into the venous circulation, and from there to the heart and through the pulmonary arteries is, compared to the rapidity with which the blood circulates, a very short distance and a very direct, open passage.

In speaking of the capillaries of the lung Gray§ says "they form a very minute network, the meshes of which are smaller than the vessels themselves; their walls are exceedingly thin."

* *Jour. American Med. Association*, Vol. XXXIX, p. 1055.

Jour. Phys. et de Path. Gén., Vol. 4, 1902, pp. 910-912.

† *Arch. de Med. Exp. et d'Anat. Path.*, March 1, 1890, p. 253.

‡ *Comp. Rend., Soc. de Bio.*, XLVII, 1895.

§ *Gray's Anatomy*, New Ame. Edition, 1905, p. 1396.

The picture this presents to our minds is that of an excellent filtering apparatus.

Calmette and Guérin's experiments have been so widely published that hardly more than a reference to them is necessary. These investigators convinced themselves that, in the immense majority of cases, the localization of tuberculosis in the lung or pleura results from arrest in the lung or pleural capillaries of microphagic leucocytes rendered immobile by the toxic secretions of the bacilli which have been ingested.* They refer to the failure of the great number of attempts made to directly infect the lungs in animals either by causing them to inhale infectious dust or by introducing virulent culture into the trachea, and express themselves as convinced that the rare cases in which these methods of infection have succeeded can be explained on the supposition that the germs deposited on the upper air passages and in the trachea and bronchial tubes had been expelled and swallowed with saliva and thus carried to the digestive tract.†

Schloszmann and Engle‡ observed that tubercle bacilli introduced into the stomachs of guinea-pigs through openings in the abdominal wall rapidly reached the lung. They believe that the bacilli pass through the mesenteric lymph glands and reach the lung through the lymph stream and the thoracic duct. This view is in perfect accord with and supports that published by Cotton and myself in B. A. I. Bulletin No. 86, and is now entertained by many competent and recognized investigators. There may be some disagreement among different observers as to the manner in which the bacilli pass through the lymph glands and lymph channels, as it has not been fully determined whether they float free or are carried along inclosed in cells. Relative to the path taken there seems to be little or no room left for doubt.

Rabinowitsch§ says: "On the ground of many observa-

* *Journal of Comparative Pathology and Therapeutics*, Vol. XIX, part 3, p. 244.

† *Jour. Comp. Path. and Therap.*, Vol. XIX, part 3, p. 234.

‡ *Deut. Med. Wochenschrift*, Nov. 27, 1906.

§ *Deut. Med. Wochenschrift*, Nov. 8, 1906.

tions and experimental demonstrations we are inclined much more now than formerly to regard infection with tuberculosis through ingestion as playing an important rôle. Numerous ingestion experiments with different species of animals have not only produced pulmonary and bronchial gland tuberculosis without lesions of the intestinal tract, but it is also reasonable to assume that bronchial gland tuberculosis in children has an intestinal origin because it is possible to discover the presence of tubercle bacilli in their apparently healthy mesenteric glands."

That solid substances in fine subdivision may readily pass through the intestinal wall and lymph channels and reach the lung and be deposited in it was shown by the anthracosis investigations of Vansteenbergh and Grysez.* They concluded that anthracosis, or coal-miners lung, is produced especially by absorption of dust that reaches the intestine.

It does not seem to be necessary to add to the testimony here presented. Persons who examine the facts carefully and impartially will find themselves forced to accept the two following conclusions:

1st. The most important, and probably the only important, entrance-way of the tubercle bacillus into the body that must be considered in the general fight for the suppression of tuberculosis is the digestive tract.

2d. Tuberculous material that has been exposed to sufficient light, drying and pulverization to enable it to float in the air has little or no virulence, and it is questionable, if it is swallowed from the upper air passages on which it may be deposited, whether it retains, excepting in rare instances, sufficient virulence to overcome the natural resistance of the body to infectious organisms.

With the respiratory and dust hypothesis discredited and the intestinal entrance of the tubercle bacillus into the body established, fresh tuberculous material that may contaminate articles of food stands out as the all-important danger against

**Annales de l'Institut Pasteur*, 1905.

which our efforts should be directed. And it is here, among these dangers, that the cow must receive careful consideration.

In B. A. I. Bulletin No. 93, in speaking about Flügge's investigations relative to the minute particles of infectious fluid that are expelled from the mouths of tuberculous persons and float in the air for some time, I pointed out the danger from intrusting the preparation and also the serving of food to such persons. We have no reason to doubt that the proximity and environment of persons affected with open tuberculosis is dangerous. The minute, infectious masses of fluid contain fresh, not dried and sterile, tubercle bacilli, and while they cannot be carried a great distance or retain their infectiousness long, they may get into our mouths, noses and throats, or on food, and eventually be swallowed. This danger of dissemination and transmission from person to person cannot be ignored and must not be undervalued. It is a strong argument for the isolation of persons affected with advanced tuberculosis of the air passages.

We will now give our attention to the cow. Investigations made at the B. A. I. Experiment Station by my assistant, Mr. Cotton, and myself, showed that tuberculous cattle which had retained the general appearance of health very frequently pass enormous numbers of tubercle bacilli with their fæces. According to Dr. W. H. Park,* of New York City, the same fact has been observed by other investigators both here and in Europe. With the subcutaneous inoculation of such fæces we produced generalized tuberculosis in guinea-pigs, and with the injection of milk soiled with such fæces, proportionately no more than commonly enters the milk pail, we also produced generalized tuberculosis. The investigations will be published in detail at an early date as a Bulletin of the United States Bureau of Animal Industry.

Recently Cotton examined the fæces of twelve cattle specially selected by Mohler and myself for an investigation, in which we desired to use very slightly, recently affected tuber-

* *New York Medical Record*, March 23, 1907.

culous animals. It is my sincere conviction that few veterinarians would have been able to diagnose tuberculosis without the aid of tuberculin among the twelve cattle, and yet, five, or $41\frac{2}{3}$ per cent., were found to be passing tubercle bacilli in their fæces. No stretch of the imagination is required in the face of this fact to realize that the environment of a herd of tuberculous dairy cows is loaded with tubercle bacilli.

Among men who have studied the subject, a great majority are of the opinion that tubercle bacilli are rarely or never secreted with milk by tuberculous cows with unaffected udders. I, too, am of this opinion, and support it on the numerous tests of milk from tuberculous cows I have made during the last dozen or more years. But there is this to be said about my tests, and I presume the same may be said about those made by most other men: they have an evidential value that goes far to prove that healthy udders rarely or never eliminate tubercle bacilli, but they give us no data relative to the frequency with which milk that has been exposed in the usual way in the environment of tuberculous cattle contains tubercle bacilli. The investigator who collects milk from tuberculous cows, in order to test it for the presence of tubercle bacilli, if he takes no other precautions, milks directly into a sterile bottle or some other small receptacle and removes it at once from the environment of the cow or covers it to prevent the entrance of foreign material. The relative chances for the introduction of foreign material are almost infinitely greater for the wide-mouth, long-exposed milk pail than for the carefully handled, smaller receptacle. Hence we must not attach too much weight or importance to these milk tests. As I have already said, they give fairly satisfactory information about the tubercle bacilli secreted from healthy udders by tuberculous cows, but not about the tubercle bacilli in the milk of either tuberculous or healthy cows when it is milked and exposed in the environment of tuberculous cattle. The truth of this conclusion is strongly supported by the following statement made in the *Veterinary Rec-*

ord, of England, by J. W. Brittlebank *: "In an examination of 10,527 cows kept in city stables only one animal was found to be affected with tuberculosis of the udder. During the same investigations of the milk supply of Manchester, England, 764 samples were taken from milk delivered by 565 different farmers from different counties, and in these samples the percentage of tuberculous milk varied from 3 to 12."

In practical terms this means, as a little simple arithmetic will show, that for every one cow affected with tuberculosis of the udder we may have from 315 to 1263 samples of tuberculous milk, with which that one poor, sick udder has nothing to do.

When we know that over 40 per cent. in a herd of twelve slightly, not visibly affected tuberculous cows are passing tubercle bacilli in their fæces, the danger that milk may be and frequently is infected in the environment of tuberculous cattle needs no further elaboration.

Broërs†, Director of the Bacteriological Laboratory of the Military Hospital in Utrecht, found that 10 per cent. of the market milk in his country contained tubercle bacilli; that tubercle bacilli retain their virulence in milk 3 days even when it has undergone changes that make it unfit for use as food, and that both butter and butter-milk contain tubercle bacilli that, in the former may remain virulent 3 weeks and in the latter 12 days. An important fact emphasized by this investigator is that the sterilization of tubercle bacilli in acid milk is more difficult than in alkaline milk, so that the effective Pasteurization of milk that has lost its normal alkaline reaction must be practiced at a higher temperature, or with a longer exposure to an elevated temperature, than is required with perfectly fresh milk.

Barthel‡ called attention to this fact in 1901, and showed that tubercle bacilli in fresh milk are killed after an exposure of 1 minute to 176° F., and in slightly sour milk not until after 5 minutes.

* Exp. Station Record, U. S. Dept. of Agriculture, Vol. XVIII, No. 6, page 581.
Vet. Record, No. 949, pp 164-165.

† *Zeitschrift für Tuberkulose*, Band 10, Heft 3, pp. 260 to 264.

‡ *Centralblatt für Bakteriologie*, Oct. 8, 1901.

And now, gentlemen, think of the enormous amount of tuberculosis among dairy cattle; of the unsanitary, filthy condition of many dairy stables; of the rapid and wide distribution of milk, and of the short time that elapses after the production of milk before it enters human stomachs. I feel that you will conclude with me that we have constantly present in our cities a vast material for the persistence and dissemination of tuberculosis which may infect our lungs, without a respiratory theory to account for its introduction into our bodies, and which is of greater importance than dried and pulverized tuberculous sputa.

Lately I started a series of investigations to determine the significance of butter as an agent for the dissemination of tuberculosis. While the work is still in its earliest stages, it has given some results that are interesting. When milk to which tubercle bacilli had been added, was separated into cream, skim-milk and sediment in a small centrifugal machine, microscopic examinations showed that the cream contained as many bacilli as the sediment. When the milk to which tubercle bacilli had been added was allowed to stand over night, it was found that the cream contained many more tubercle bacilli than the sediment. In neither case was it possible to find tubercle bacilli in the skim-milk.

Obviously, when cream globules and tubercle bacilli come in contact they adhere to each other with a tenacity that cannot be broken by the difference in their respective specific gravity, which is less with the one and greater with the other than that of water.

We find no encouragement here to eat ice cream and butter with the pleasant conviction that they are free from tubercle bacilli.

I believe I have shown in this paper valid reasons why the two names in its title, "Tuberculosis" and "Cow," should stand close to each other.

We should feel very cheerful about all this, however, because very little thought will reveal that it is a much simpler

and easier matter to fight fresh tuberculous material that must be taken into our stomachs before it can harm us, than it is to deal with a widely scattered, universally present dust from which there is really no escape.

Avoid close contact with tuberculous persons; insist that food shall be prepared, served, sold and in every way handled by healthy persons; clean all dairy herds of tuberculosis as soon as possible, and until this is done use raw milk and dairy products cautiously. These are among the practical and rational conclusions from the most recent investigations of tuberculosis.

TO PREVENT A HORSE FROM KICKING IN THE STALL.—A correspondent of the *Breeder's Gazette* asked for advice in regard to a horse owned by him which had the bad habit of kicking while in his stall. An avalanche of replies came from all parts of the country, most of them embodying the principle of the strap and chain to the hind fetlock or the rebounding bag. But one reader, E. H. Palmer, of Washington County, Ohio, gives his method as follows: "Go to the harness shop and procure a first-class strap of leather, first cut on side, one inch and a half wide, the full length of side, cut tapering at point to three-fourths of an inch. Then get three $1\frac{3}{4}$ " rings, with one straight side if they have them; if not, round ones will do. Have one sewed in end of long strap. Then get a strap $2\frac{1}{2}$ " wide, just long enough to go around pastern of hind foot with edges chamfered nicely with one of the rings in each end. Now get a strap just long enough to go around the horse's neck where the collar fits with a two-inch ring joining the ends of strap. Put this over the horse's head with ring at breast. Put short strap around pastern of near hind foot; run the long strap through rings, then through ring in long strap, and draw up tight. Take tip of long strap, pass up between fore legs through ring in collar around horse's neck, draw up snug when horse is standing in his natural position, and tie strap firmly. Now you have a sure, humane remedy for a horse that is a kicker; it does not interfere with him in the least standing in stall, or in lying down or in getting up, and he would not know it was on unless he attempted to kick. This has been our remedy for kickers for over fifty years, and we have never known it to fail."

THE OPHTHALMOSCOPE FOR VETERINARIANS.

BY GEO. G. VAN MATER, M. D., D. V. S.,

Professor of Ophthalmology, New York-American Veterinary College.

The prospective purchaser of horses of the present day looks for his money's worth, not only as a live stock investment, but with an especial reference to the opinion of the developed veterinarian. He knows, as we have striven to inculcate for so many years, that the day of the "horse doctor" is a thing of remoteness. He thence, naturally, looks for and expects a statement based on knowledge, which acquired knowledge must be of a character profound enough to establish a fact of weight strong enough to withstand a forensic attack. The ophthalmoscope is *the* instrument that enables the veterinarian to state on oath the condition of the (particularly) deeper structures of the eye. The condition of the crystalline lens, so important to know, is laid bare by this wonderful discovery of the great scientist Helmholtz. The incipient cataract is readily diagnosed, where the catoptric test is fallacious. And this last mentioned method is the one usually employed by the dealer and usually to his own satisfaction (sic). But it fails just where it is most needed, *i. e.*, in immature cataract. The veterinarian knowing the minute anatomy of the crystalline lens, understands the import of the star-like striated appearance shown by the ophthalmoscope (the German for cataract is "star") and interprets this appearance as a *beginning* cataract. When this condition presents in a \$6000 colt, the inference becomes quite plain—and as the "laborer is worthy of his hire" the fee of \$100 is not incommensurate. 'Tis again the old question of the "know how." And again, to be able to say, the disc (optic nerve head) looks so and so. That settles that, for you *have seen it!* No guess work; no corollary judgments here. It has been *seen* and all the opposition that may be brought forward cannot detract from the value of that statement. Having viewed a living artery, vein and nerve in a state of physiological

health, the crystalline lens *must* be normal and the eye pronounced serviceably sound. If the lens were affected the rays of light would not be refracted, but reflected, and the reflection would show the non-permeable crystalline lens. Then the diagnosis would be cataract, partial or complete. And a partial obfuscation of the crystalline lens—is, an unsound horse and must be so stated. It must be borne in mind, however, that an eye may be in a state of convalescence—recovering from an attack of iritis, choroiditis, or in the remission stage of periodic ophthalmia (moonblindness—with which condition the lunar sphere has as much or less to do than has our friend John D. Rockefeller), and when, in a district where periodic ophthalmia is prevalent (for instance, the Hudson River Valley), the necessary caution on the part of the veterinarian is obvious. Periodic ophthalmia is irido-choroiditis plus the periodicity, and also plus its consequences. And the consequences are, in unchecked cases, invariably cataract. We have not as yet reached the conservative stage of the French Government, which refuses service to mares having suffered an attack of periodic ophthalmia. No, we still treat subjects veterinarian as a side issue, just as the veterinarian is (or has been) looked on by some—many and various—as a partly educated man, an immature medical curiosity. But, when he confidently throws the ophthalmoscopic light into an eye, sees what he sees, and understands what is observed, he not only acts the part of an educated medical man, but he unconsciously *educates* the laity to an increased and a deserved respect for this most humane and valuable profession.

The ophthalmoscope in the hands of the veterinarian differs from the same instrument in those of the M.D. Let me tell you how. A telephone call from a prominent oculist got me one evening (and while names are unnecessary, when I say that this oculist recently made a tour of Russia in his touring motor car, you will have some idea of his professional success and standing in Manhattan), and he asked me if I was still connected with that horse affair (meaning the N. Y.-A. V. C.), and

with a great effort I told the truth and said "yes." He then told me a patient from afar was in town for treatment and while here had attended the horse show and purchased a team. Since the consummation of that deal he had become apprehensive of the ocular end of one of them and (said the eminent oculist) I am unable to find the disc (optic nerve head), and would I object—it being only a horse—to coming over and looking into the matter? I answered emphatically "no," for all eyes are of interest to me—chicken, canary, dog, cat, cow, or horse. I also told him what my fee would be—a good sized one. "All right," was the response. Then, like an ass, I had to *volunteer* information. "You know, Doctor," I said, "all horses are hyperopic, unless otherwise as the result of disease or accident, and you had better use a plus lens in your ophthalmoscope, that may show you the fundus more clearly." "Oh!" said he. I heard no more of the case and did not meet the Doctor for quite a period, when I mentioned the affair to him. "Yes," he said, with a chuckle, "I got a hundred dollars for that." Isn't that nice, gentle reader? He got a hundred, I got experience. It takes a forceps operation to get gratuitous information from me now. So, in examining an eye, throw a plus (+) lens in front of the sight-hole, a No. +1, No. +2, No. +3 and so on up the scale until you see the fundus clearly, or if instead of improvement in seeing, you get blurring, reverse the procedure and throw a minus (—) No. —1, No. —2, No. —3, and so on down the scale until the desired result obtains. The plus (biconvex) lenses are denominated plainly in white on the reverse of the ophthalmoscope (+1, +2, and so on), and the minus (biconcave) lenses are in red (—1, —2, and so on).

And, remember this, every time you examine an eye ophthalmoscopically, you progress in facility of manipulation as well as in knowledge, if *only* by unconscious cerebration.

"NO VETERINARIAN can be up-to-date without your valuable REVIEW."—(W. A. Axby, D. V. M., Harrison, Ohio.)

REPORT ON SURGERY.*

BY C. C. LYFORD, M. D., D. V. S., MINNEAPOLIS, MINN.

Presented to the Minnesota State Veterinary Medical Association, January 9, 1907.

My report to-day will be on a few clinical cases, such as come to us with "hurry-up calls," generally occasioned by accidental injuries. These cases often require prompt action, good judgment and surgical skill, so that the patient may not only be made useful, but that there may be the least possible blemish.

Whenever you see a *practitioner* who *wavers* or seems to *scringe* before cases of this kind, it is very evident he lacks that quality indicative of reserve force, stability and judgment which forecasts success, unless Mother Nature and the patient outdo the practitioner, and, as a consequence, recovery is in spite of the treatment. Too often the patient is given little if any relief from want of applications of soothing and protective agents, and from lack of trimming away a sufficient amount of the lacerated tissues, which later prove a burden rather than a benefit. Our patients are often plastered, sewed and bandaged so as to make a favorable impression, with apparently lack of judgment as to the outcome, consequently we must later on remove more or less of the injured parts, which delays union and increases the blemish. Stitches are of themselves very often a source of additional scar tissue more unsightly than that of the original wound. My advice would be, "hew to the line," so that by removing all mangled tissues of whatever kind, the wound may at the outset commence to heal.

* Before giving my report on "Clinical Surgery," I wish to correct a misstatement in reporting the discussion at our July meeting which appears in the December (1906) REVIEW, page 1114. It will be remembered I recommended Dr. Hughes' operation for "blood spavin" as an improvement on other ways of which I spoke. I also stated that many of my own operations had come to me or had originated as the results of accidents. Instead of saying this, the report reads: "I think Dr. Hughes' operations have come from accident." It seems to me that it is much safer not to discuss others' work if it must be so misconstrued. It makes me feel that one is placed "between the devil and the deep sea," should he attempt to give credit and a fair estimate of others' work.

Two of the cases that I shall report to-day had fallen into good hands, for their primary treatment at least, which I shall endeavor to give you with his consent.

I.—Chestnut mare, four years old, belonging to James Smith, of West Liberty, Ia. At time of injury, Feb. 1, 1905, Dr. Heck was called to attend the case and found patient suffering from a barb-wire cut of left hind leg, extending from upper edge of castor to a point nearly four inches above the hock, thus completely removing all the cutaneous tissue over a width of two inches and a length of nine inches. At the upper surface the skin was still attached, forming a clump nearly the size of one's fist. This skin was excised and the mare was cared for by Dr. Heck until Feb. 15, 1905, when she was shipped to me at Minneapolis, Minn. (I having purchased her right after the accident). Dr. Heck's treatment consisted in daily applications of the following liniment: Raw linseed oil, $\text{℥} \text{ lx}$; spirits terebinthinæ, $\text{℥} \text{ iiss}$; com. sulphuric acid, $\text{℥} \text{ iss}$. Mix. Shake well and apply freely each day. Upon the mare's arrival at Minneapolis, she was cleansed and for ten days dressed with tincture of iron, after which she was sent out into the country, with orders to have the iron application

continued once a day until wound was healed. I did not see the mare again until April, 1906, when she was returned to me with the wound not entirely healed, apparently having received little care during the winter. The hock was also somewhat swollen, but no lameness. Tincture of iron was continued once each day and the mare was used for city driving. The swelling soon disappeared and the wound was healed over by June 1, leaving



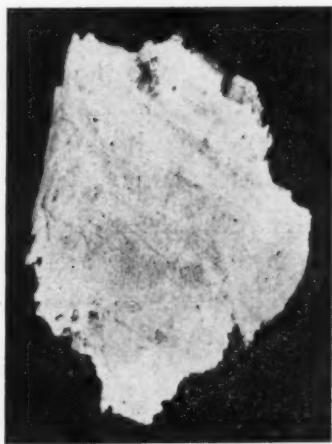
CUT NO. 1.

a scar, as seen in Cut No. 1 (photo was taken nearly two years after accident). It will be noticed that the cicatrix has drawn the castor upwards nearly two inches and the skin has completely covered the point of the hock, extending nearly two inches below, the scar taking the shape of a letter T, with the hair nearly covering it. It will also be noticed how much shorter the left hock looks than its fellow.

II.—Chestnut filly, two years old; photo taken Jan. 5, 1907, five weeks after the accident. This filly was also at West Liberty, Ia., she having kicked through a barb-wire fence, and caught her leg on the wire, which from the size of the wound and scars on leg indi-



CUT No. 2.

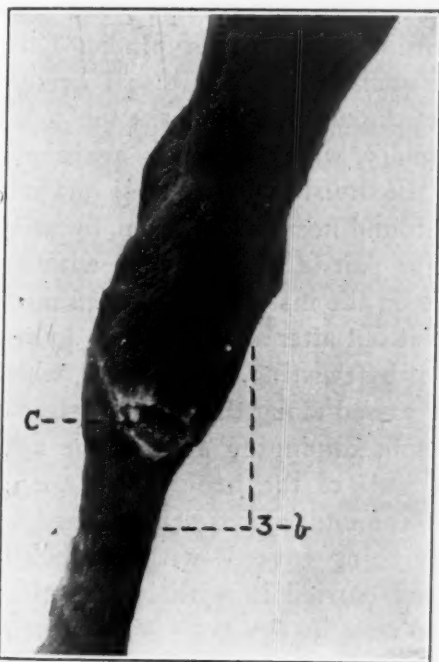


CUT No. 3.

cate that she was held by the wire for some time, as the bone was laid bare at the upper end of the large metatarsal, the periosteum denuded, and bone serrated, as shown in Cut No. 3. This case was also treated by Dr. Heck, in practically the same way as No. 1, except occasionally the Doctor used a weak solution of sulphate of copper to smooth off the granulations. Cut No. 2 shows that the parts have been well *trimmed* and *cared*

for, while the centre of the granulating surface shows a depression from which I assisted Dr. Heck in removing a piece of necrosed bone December 30, 1906, just five days before photo was taken. Cut No. 3 shows photo of bone removed; the serrations indicate to what extent the wire sawed across the leg. The photo shows the exact size of the necrosed bone, the top portion being the extreme upper end of the metatarsal bone (anterior surface).

This photo was taken April 18, 1907, being three months later than No. 2. It shows



CUT NO. 2A.

what good treatment and care will do, the parts being properly trimmed at the beginning. Dotted lines indicate the original size of the cut, and show to what extent the cicatrix has already drawn the skin together; C shows the granulating surface still in a healthy condition, thus indicating no tendency to bulge, so that we may feel certain that there will be very little scar tissue when wound is entirely healed.

IV.—This piece of wagon-pole had entered the hind foot of a five-

year-old mare, as a result of a runaway. I was called to attend the case after the owner had wasted nearly an hour attempting to pull out with his fingers what he thought a sliver, and as I was asked to bring a pair of small pincers to take a sliver out of a horse's foot, I did not succeed much better than the owner, even though I cast the mare. I found the stick had entered



CUT No. 4.

Full size of stick, $5\frac{1}{2}$ inches long, $\frac{1}{2}$ inch wide, $\frac{3}{8}$ inch thick.

the foot just above the cleft of the frog, making an opening that easily admitted the ends of two fingers, but the stick was out of reach, being imbedded half an inch below the surface. After several attempts to extract it with a strong pair of bone forceps without making any impression on the stick except pulling off small portions of it, I cut through the frog so as to get a better hold; then with an ordinary horse-shoe pincers I was still unable to move it, so I decided to let the mare up and take her to my infirmary, where she was again cast and the division of the frog and sole was found necessary. Then, by using a large pair of tooth forceps, with my knee on the mare's hip, enabled me to pull it out after succeeding in loosening it by twisting. The stick, which had passed along the upper surface of the sole, impinging against the anterior wall of the hoof at the toe, so that the end (a) was bent upward, besides being covered with hair, which it had carried in with it, and still is to be seen in the cut. (b) represents the end which was buried just under the skin and shows that it has been somewhat denuded in the attempts made to extract it.

The wound was then injected with corrosive sublimate and *hot water* (1:500). This was continued for at least a quarter of an hour. I then injected peroxide of hydrogen and swabbed the entire length of the cut out with

1:20 carbolic acid and hot water; then covered the wound with oakum saturated in 1:500 corrosive sublimate, which was held in place with bandage and poultice-boot. The patient was then let up and stood with some weight on the foot and showed very little distress.

The following day I had the mare shod with leather sole hinged at toe and strap fastened to rear of leather sole so that it could be buckled around the foot and so retain dressings for foot and at same time protect the sole of foot from further injury.

On the third day after the accident the mare walked home, a distance of 16 miles, scarcely at all lame, except when she would step on a piece of ice or crusty snow. The owner reported to me on the twenty-first day that she was so lively he could scarcely lead her to water, and that the wound was almost entirely healed, except somewhat bulged where frog and sole were cut. Hot water, corrosive sublimate and tincture of iron constituted the main remedies used.

In this connection I wish to call your attention to the use of frog setons, which have proven quite successful in so-called navicular disease, especially when the tendons and ligaments are sprained. Many practitioners, as well as owners, seem afraid that a frog seton will prove injurious rather than helpful. There should be no such excuses for a surgeon after treating cases like No. 4.

THE Chief Inspectors of the various packing centres were called together by the Secretary of Agriculture at Chicago on May 7, to discuss the problems connected with meat inspection.

THOSE who underrate the speed of the Hackney, should remember that the American trotter is descended largely from this breed—indeed owes his greatest speed lines to the wonderful Norfolk trotter, imported "Bellfounder," sire of the dam of Rysdyk's "Hambletonian." "Hambletonian's" sire, "Abdallah," was by thoroughbred "Messenger," and was so little thought of that he died from ill-treatment and exposure. "Bellfounder" was a fast trotter, having a record of two miles in five minutes, and was of the Norfolk cobs, origin of the modern Hackney.

THE SURGICAL AND MEDICAL TREATMENT OF ACTINOMYCOSIS.

BY P. A. AAGESEN, V. S., ST. ANSGAR, IOWA.

Read before the Meeting of the Iowa Veterinary Association, Jan. 28, 1907.

My experience with the treatment of lumpy-jaw dates back over a period of forty years. However, I will confine myself to the treatments made in Mitchell County, Iowa, during my residence there. Several years ago I was called upon to treat a pregnant cow (a prize winner). I informed the owner that I considered it safest to defer the operation till a week after she dropped her calf, and did so. I then operated on her and effected a permanent cure. The calf at the age of two years developed lumpy-jaw. I operated on him and effected a permanent cure. That animal was used for breeding purposes for several years and the disease never appeared again. This bull was also a prize winner at the age of three years. There was a herd of four hundred cows on this farm and those were the only two cases of lumpy-jaw to develop in the herd during five years. This proves conclusively to my mind that the calf inherited the disease from his mother.

I operated on another cow in this county when five months with calf, and when dropped that calf had a well-developed case of lumpy-jaw. When eight days old I operated on this calf, which is now a six-year-old cow, and until this time the disease has not reappeared, and the offspring of this cow have never developed a case of the disease in question.

Until about five years ago I did not think that lumpy-jaw was contagious. I am of the opinion now that it is. A stock-feeder at St. Ansgar bought a steer with lumpy-jaw in a rather aggravated form. It discharged continually. This steer was placed with other steers for a few days before I operated on him. In thirty days there were three new cases among that herd. My opinion is that when a bunch breaks open and discharges on grain or feed, and when other stock get in contact with such grain or feed the disease will develop.

This same feeder bought a steer for \$40 which had been treated with some kind of "cure" for sometime without any results. I operated on this steer, and two months later he was shipped to Chicago, passed inspection and sold for \$80.

I was called at one time to the Otranto Stock Farm and found two cows afflicted with lumpy-jaw. I found that the bunches were broken on both and that they were discharging. Forty-three cases developed on that farm in about four months.

I was called to another case, a bull. It was a very bad case, and I wanted the owner to fatten the animal and sell it. But the bull yielded to treatment and seemed to be perfectly well and the owner continued to use him as his herd bull. In one year the bull again developed another case of lumpy-jaw. I operated on him a second time and the animal recovered and was shipped to Chicago and passed inspection.

I have experimented with the different kinds of acids and iodine, but find that iodide of potassium and blue vitrol and alum the best treatment.

About twenty years ago I read an article in the *Drover's Journal* concerning a law suit in Chicago over lumpy-jaw cattle. One doctor testified that he had treated cattle for this disease for forty years and had never yet succeeded in curing one single case. Other doctors testified that in most cases it was curable. I say "Yes" to the latter statement. It is my judgment that when the tongue or jaw bone is not affected the case is curable.

UNDER a recent law passed by the New York Legislature the police have the right to destroy maimed horses in the streets without first notifying the S. P. C. A.

THE PULSE BEATS FASTER.—For the first time in years the cry of "Mad Dog!" was heard on our streets last Friday, and men turned pale and gasped for breath. It turned out to be a false alarm, however. A poodle dog belonging to Mrs. Everest, wife of our barber, had got a walnut in his throat, and was running about in his terror. We are not a large city, but things do happen here to stir the blood.—(*Hometown (Pa.) Banner.*)

MODERN VETERINARY METHODS.

BY WALTER J. TAYLOR, D. V. M., ITHACA, N. Y.

ACTIVE AND PASSIVE IMMUNITY AND PROTECTIVE INOCULATION.

All of the different forms of immunity fall naturally into two main groups depending upon the method by which they are produced. These two groups consist of *Active* and *Passive* immunity. In the case of natural immunity it is impossible to explain just how the phenomenon is brought about. Thus we are unable to state positively just which of these two forms lays claim to its production. In the light of our present knowledge *it seems best to allow natural immunity to remain as natural immunity* and confine ourselves to artificial immunity.

Active and Passive Immunity.—In methods of producing artificial immunity, most of them require the introduction into the body of the living virus or the injection of the products (toxins or heated cultures) of the living virus in repeated doses and in constantly increasing quantities. Immunity produced by any of these procedures or by the recovery from an attack of an infectious disease is called active immunity. When the immunity is produced by the injection of the serum (antitoxin) of animals already immune it is called passive immunity.

Active immunity is slow in its appearance, is more or less dangerous to produce and is always attended with at least some discomfort. It varies in the time it lasts, but usually is quite persistent, lasting from a few weeks or months to several years. Passive immunity is quite rapidly produced, is attended with little or no danger and practically no discomfort. It is very limited in its period of duration. The most extensive use in passive immunity is in immunizing children against diphtheria. It is not employed to any great extent in animal diseases. The immunizing of horses against tetanus before an operation is, however, practiced by many operators.

Protective Inoculation.—The practical application of immunity in protective inoculation or vaccination has come to mean the establishment of partial or complete immunity in the individual against the disease in question. The vaccination against small-pox introduced by Jenner in 1796 is a well known example of protective inoculation. Pasteur found that animals inoculated with attenuated cultures of anthrax and chicken chol-

era bacteria were subsequently immune to their respective diseases. From this there has developed many procedures for establishing both active and passive immunity against a number of diseases of animals. The methods that are now in use, together with the diseases against which they are employed, may be summarized as follows:

I. Active immunity.

1. The injection of non-lethal doses of the virulent virus. This method is employed most extensively in immunizing cattle against Texas fever and bovine contagious pleuro-pneumonia. It is used in France to immunize against sheep-pox (clavelization).

The fact that susceptible cattle can be immunized against Texas fever by the use of blood from immunized animals has been demonstrated. The method is being applied with success in several places in the tick-infested district. It is a practical method, but, like the others, it should not be undertaken without a realization of the possible unfavorable outcome.

2. The injection of animals with attenuated cultures of the bacteria of the disease against which immunity is to be established. This method is used most extensively in anthrax, rabies, symptomatic anthrax, swine erysipelas and bovine tuberculosis.

The practical value of vaccination for rabies, over that of most other diseases, is the fact that it is effective if made early in the period of incubation. This vaccination taking advantage of the long period of incubation in rabies, constitutes a form or type of handling of an infectious disease intermediate between protective inoculation and therapeutic method of treatment.

Many efforts have been made to procure a vaccine for tuberculosis. Pearson of the University of Pennsylvania, and von Behring, of Marburg, Germany, have done the most work along this line. A number of other workers have reported results, among whom deSchweinitz, Trudeau, M'Fadyean and Schütz may be mentioned.

The bovovaccine of von Behring consists of living human tubercle bacteria. The results reported by him and others who have tried his vaccine are, for the greater part, encouraging, but as yet the method is in the experimental stage.

II. Passive immunity.

This consists of a temporary immunity produced by the injection of the blood serum of an animal that has been immun-

ized to the disease. It is employed as a prophylactic in swine erysipelas, tetanus and diphtheria.

The use of tetanus antitoxin to immunize horses against tetanus before subjecting them to operations, such as castration, or after receiving punctures of the skin or hoof ("farrier's puncture") is becoming more and more prevalent in those countries and localities where tetanus is common. In France it seems to be used more than elsewhere.

The value of diphtheria antitoxin as an immunizing agent against diphtheria in children is a well known fact.

III. The Simultaneous Method.

This consists in using a strong virus together with an immunizing serum. The process is of comparative recent date. It is used quite extensively against rinderpest, anthrax and rabies.

In case of rinderpest the animals are injected with a protective serum simultaneously with the virulent blood. The immune serum is obtained from animals that have recovered spontaneously from rinderpest or from cattle that have been immunized by bile or some other method. The serum alone of animals that have recovered spontaneously possesses very slight protective properties unless very large doses are given. Kolle and Turner showed that if animals just recovering from an attack were injected with large quantities of blood coming from animals suffering with a fatal attack, the protective power of the serum was markedly increased. This serum may be kept for a long time by the addition of a small quantity of carbolic acid.

In rabies the method is reported to be most successful. Its essential advantage over the other process is that it can be used with good results much later in the period of incubation. It has the additional practical feature that the number of injections is minimized.

In anthrax it is reported to be giving much better results than the double inoculation with a weak and stronger vaccine as followed in the Pasteur method.

Difficulties and Dangers to be Considered in Vaccination.—The results of the efforts that have been put forth during the last twenty years to obtain control over the infectious diseases of animals, show that with the victories there have been many failures. Because of the few diseases for which vaccines have been successful, animal owners often look upon vaccination as a safe and sure means of heading off all infections. Because of

their strong faith in its efficiency and the ease of its application, it is often chosen rather than the more difficult and perhaps immediately more expensive procedures of prevention or eradication. For a few diseases there is a well established natural basis for vaccination, but with others such a foundation does not appear to exist. The reasons for occasional failures in vaccination are not difficult to find. The analysis of the principles underlying vaccination shows that it means the establishing of immunity by the introduction into the body of non-lethal doses of virulent virus or the use of a virus that has been attenuated.

It is not always easy or even possible to know the exact degree of virulence possessed by the vaccine, and again the resisting forces of the animals vary even in different individuals of the same species. If the virulence is too great or the resistance below the supposed normal the vaccine may produce disease in excess of the amount required to establish immunity and perhaps it may kill the animals it was intended to protect. This is one of the results that have been experienced. On the other hand, if the attenuation of the virus is too much, or the animal resistance unusually high, there is not disease (reaction) enough produced to cause an immunity. In this case the results are negative. In cases where the virulent virus is used in small doses, accidents have happened by way of producing a fatal disease instead of a mild attack that was anticipated.

A glance at the diseases for which active immunity has been obtained will show that they are acute toxic affections and not those in which the disease consists of extensive tissue destruction.

Toxic immunity has been obtained in several disorders but a bacterial immunity is much more difficult to acquire.

The dangers in vaccination as applied especially to animals at large may be enumerated as follows:

1. The vaccine may be too much attenuated, resulting in a failure to establish immunity.
2. The vaccine may be too strong (virulent) so that it will produce more disease than is desired, possibly causing fatal results.
3. The attenuated virus of which the vaccine consists may regain its virulence. The distribution of living pathogenic microorganisms among animals is of itself not to be recommended. They may be the starting point of subsequent outbreaks.
4. In using non-lethal doses of a virulent virus, the danger

of producing fatal results because of the susceptibility of the individual treated is always present.

5. In the simultaneous method the danger of accident resulting from too strong a virus, too weak a serum, or the high resistance, or unusual susceptibility of the individual are possible conditions to be kept in mind.

(To be continued.)

EIGHTEEN veterinarians passed the examination of the Nebraska State Board of Veterinary Examiners on April 10.

UTAH NOW HAS A VETERINARY LAW.—In the editorial summary of the legislative grants to the veterinary profession during the last session, which appeared in the June REVIEW, we find that the State of Utah was omitted. By an act of the Legislature approved by the Governor on March 23 a Board of Veterinary Medical Examiners was created and laws enacted to protect the title or degree of those upon whom they have been conferred. The Board is authorized to accept the diploma of a veterinary school recognized by the A. V. M. A. in lieu of an examination upon the payment of a registration fee of five dollars, and it shall examine any citizen of the state of good character who may apply, upon the payment of a fee of ten dollars. While this latter section is quite objectionable, there is little likelihood of any one securing the license of the Board, since the branches to be examined upon are those usually taught in veterinary colleges, and include: Veterinary anatomy, surgery, practice of medicine, pathology, chemistry, veterinary clinical diagnosis, therapeutics, physiology, sanitary medicine, meat and milk inspection, obstetrics, veterinary dentistry, bacteriology, histology, hygiene and such other branches as the Board may prescribe. No person not holding a diploma shall append initials to his name indicating that he holds a degree, but shall be known as a "practicing veterinarian." The law does not prohibit any one from practicing providing he does not use the title "veterinarian," "veterinary surgeon," "veterinary dentist" or analogous title. Those who violate the provisions of the act are deemed guilty of a misdemeanor. While some of the features of the act are quite objectionable, it was the best that could be secured at its inception, and it is to be hoped that the law may be subsequently strengthened. The Board of Examiners appointed by Governor Cutler is as follows: Dr. Ernst, Salt Lake City; Dr. Parker, Ogden, and Dr. N. C. Spalding, Provo.

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

RESULTS OF A FEW POST-MORTEMS.*

By C. C. SLAGHT, D. V. S., Tecumseh, Mich.

Although the post-mortem is not the most agreeable part of our work, it is instructive and a source of satisfaction.

It often confirms the diagnosis and seldom fails to convince the owner of the cause of death and that treatment was useless.

In looking over the record of several years' practice the following conditions have been observed.

Wishing to occupy as little time as possible and make the subject clear, we will mention only the most prominent ante-mortem symptoms and the post-mortem results.

I.—A bay driving horse lying easily in his stall was unable to rise; hind parts paralyzed, appetite good, pulse very weak but not quick, temperature a little below normal.

The posterior aorta at its bifurcation in the pelvic region was partially closed by a hollow, yellowish-white, tough mass, about two inches long; the opening through this mass was about one-fourth of an inch in diameter, while the branches were reduced to one-eighth inch.

II.—A bay farm mare, unthrifty and weak, appetite good when idle, but very poor when at work, temperature about normal, pulse full and very soft—more of a steady flow; no well-defined pulse beat.

Attached to the spinal column a few inches in front of the kidneys was a tumor-like enlargement, oval, hard and smooth. Dissection showed a thin bony cup over which the aorta was stretched, the cavity thus formed would hold one-half pint.

III.—A grade Jersey cow, due to calve, was said to have expelled the placenta, but no calf. Examination proved the uterus to be empty and the calf lying in the abdominal cavity. Inside the uterus on the left side a circular opening appeared, the rim was hard and smooth and the opening about six inches in diameter.

* Read before Michigan State Veterinary Medical Association, Feb., 1907.

The hand could easily pass into the womb and through the opening feel the calf, which was dead. The cow was slaughtered and diagnosis confirmed by post-mortem.

IV.—Twice in mares and once in a heifer, extensive lacerations of the anterior walls of the vagina were found, caused by too fierce service on the part of the male.

V.—In two cases hernia of the diaphragm was seen, the first, a brown gelding, six or eight years old, never sick before, was attacked with colic after a day's drive. A circular opening about two inches in diameter was found in the diaphragm, to the right of centre, through which eight feet of small intestine had passed into the thoracic cavity. This portion of the bowel was strangulated and full of gas. The second case, a brown mare, ten years old, due to foal in two months, had been colicky at intervals for about a month; would paw a little, roll over a few times, sit on her haunches a few minutes, get up and shake herself and go to eating.

The last attack was more severe. She also had a two-inch opening in the diaphragm through which sixteen feet of intestine had forced its way. In both cases the edge of the opening was smooth and calloused.

VI.—A large gray gelding, after a drive, was taken with a chill, followed by stiffness and soreness of the muscles and hind-quarters; refused food and water, shifted weight from one foot to another, temperature 104° , pulse 80. He died inside of forty-eight hours. In opening him all superficial bloodvessels were found filled with ante-mortem clot. The internal bloodvessels and heart were also more or less filled with the same tough yellowish-white clot; very little red clot was found in the heart or other organs.

VII.—A six-year-old driving horse developed pneumonia after an attack of influenza. This animal was repeatedly found lying down, resting easily, and in fact only a few minutes before he was killed he was down resting.

One lung was entirely destroyed, excepting the bronchial tubes. In its place there were quarts of thick white pus. The other lung was also affected. There was an intermittent fever, and appetite in this case.

VIII.—A bay mare, suffering from flatulent colic and not responding to treatment, was found to have a twist in the intestine beginning about two feet anterior to the anal opening. She was destroyed and a loop of intestine was found to have dropped over one of the ovaries, thus shutting off the circula-

tion in both intestine and ovary. The ovary was greatly enlarged and the intestine gangrenous.

IX.—A roan gelding having colicky pains seemed to rest most easily while sitting on his haunches. One loop of intestine was firmly held and strangulated by another encircling loop.

X.—A two-year-old heifer turned into a field in the morning ran and jumped about for a few minutes, then suddenly stopped and began pawing and kicking at the abdomen. Attempts were also made to roll over. Treatment for colic and indigestion proved unsuccessful and she died on the fifth day. A section of small intestine about four inches in length was telescoped into itself. All other organs were normal.

XI.—A similar condition existed in a fattening lamb brought to me for examination a few days ago.

XII.—A bay gelding ate his feed at night and was dead in his stall in the morning. A ragged rupture of the diaphragm from its superior and lateral attachments was the only lesion found. There had been no struggle at the time of death, for the stalls were in good condition and the bedding had not been disturbed.

XIII.—A cow near calving time responded nicely to treatment for indigestion, carried the calf till due, and did well at that time. She soon went off her feed and dropsical swellings appeared on the throat, neck, sternum and front legs. The rumen was found to be firmly attached to the diaphragm and some rusty object had passed through the walls of both and then to the apex of the heart, which it had entered a short distance. Firm adhesions existed all along the course taken by the object. The heart was surrounded by a large amount of foul-smelling black fluid.

XIV.—In another case, opened a few days later, a nail had penetrated the lung, causing adhesions, abscess and hardening of nearly the whole lung.

XV.—A cow suffering from a urinary trouble was found to have a floating kidney, enlarged to several times the normal size. This was among the intestines, but still loosely attached to the spinal region.

XVI.—A suckling colt had severe colicky pains, and died quite suddenly. A section of small intestine, thirteen feet in length, was packed with worms, at least three species being represented in the mass.

XVII.—A Holstein cow, partially paralyzed, was suffering

from enlargement of the mesenteric lymphatics, hardening of the liver and renal calculi.

XIX.—A heifer died in the pasture. A knot from the end of a heavy rope was obstructing the passage to the third stomach.

XX.—A Holstein cow, after calving, did not get on her feet. In attempting to explore the uterus it was found to be torn from its neck and the hand passed into the abdominal cavity. Post-mortem confirmed the condition.

XXI.—Two calves, fed milk with cotton seed meal in it, were dead from rupture of the rumen. All the abdominal viscera were more tender than common and of a dark yellow color. Collections of cotton seed hulls were found in different parts of the stomachs and bowels.

XXII.—A two-year-old colt fed a grain ration of coarsely ground corn-and-cob meal, was down, too weak to lift its head. Visible mucous membranes bloodless, clots of blood oozing from the anus. On opening the bowel sharp disk-like particles of cob were found thickly imbedded into and piercing the internal coat of the bowel, thus causing the fatal hæmorrhage.

XXIII.—A two-year-old steer, on pasture, was tapped for bloat; very little gas escaped, and by further examination fluid was detected in the abdominal cavity. A trocar was inserted in the right flank and one hundred and fifty (150) quarts of fluid were removed; this reduced him very much in size and the shock to his system was too great for recovery. Post-mortem revealed a mass of wheat beards high up in the sheath, ulceration of the penis and rupture of the bladder.

XXIV.—A brown mare, down and unable to rise, all mucous membranes very yellow, urine highly colored and fæces very hard and black, constantly working the head and front feet. The owner being unable to care for her wished her killed. Examination showed a large amount of sand mixed with the fæces in the small intestines and great colon, while from one pocket in the cæcum a two-quart basin was filled heaping full of clear sand. The animal had pastured on the river bottoms and drank from the river; always going into the water and pawing while drinking.

XXV.—A gross-feeding grey gelding had been subject to colic for two or three months; one morning he was found vomiting. This condition continued for about eighteen hours, the periods of vomiting occurring from one-half hour to two hours apart and lasting from one to five minutes. A partial rupture

of the stomach extending along its superior surface from front to back about ten inches, where it terminated in a complete rupture four inches in diameter. The portion partially ruptured was dry, black and smooth, while the complete portion looked fresh and ragged.

XXVI.—A Jersey cow, due to calve the second time, was unable to do so. The vagina and rectum were protruding and had been so for ten days. The walls of the vagina were much thickened; the neck of the womb was in a solid, fibrous condition. It was about one and one-half inches in diameter and six inches in length. The posterior wall of the uterus was very much thickened.

XXVI.—A farm horse fell three times with great force, while drawing a heavy load into the barn. She soon showed weakness and finally went down. There was no sign of pain, visible mucous membranes bloodless. The liver was the only organ showing any abnormality. It was dotted with elevations from the size of a pea to that of a common-sized marble; when cut into these were either clots of blood or liquid blood.

These are a few of the results of post-mortems which it has been my good fortune to see and record.

LARGE INTESTINAL CALCULUS IN A HORSE.

By JOHN J. CATTANACH, D. V. S., Newark, N. J.

On April 2d I was called to see a gray gelding, nine years old, the property of Mr. P. Rielly, 966 Broad Street, and found the horse suffering from colic. I administered the usual treatment and also gave a dose of linseed oil, as I had attended the same case on a former occasion and found that he got no relief until oil had been administered. Next day, April 3d, I again called, and found the animal quietly munching his oats and apparently as well as ever.

April 4th I received a telephone message to come immediately, as the horse was in great pain. The result was that I found it necessary to give my attention to the case the greater part of the day, administering rectal injections every hour or so, with little or no result, and also hypodermic injections of morphine and atropine, which eased the pain for a time. I may here mention that this horse was of a very quiet disposition when in his normal condition, but when attacked by pain, would kick with the viciousness of a broncho. Considering the condition of the animal and the severe constipation, I came

to the conclusion that an obstruction was the cause and determined to give a dose of aloes, which I did, and the pain ceased in half an hour and the patient seemed anxious to eat.

April 5th on seeing the case I found that the physic had not operated and called my brother, Dr. Chas. C. Cattanach, in consultation, and after making an examination he concluded that the horse had either a severe attack of constipation or an intestinal obstruction.

April 6th I was very much gratified to find the bowels moving freely, and the horse showing marked signs of improvement, being anxious to eat and standing in a perfectly natural manner.

April 7th and 8th, physic still acting, when it suddenly ceased, and was followed by a quantity of baked up material, which looked as if he had passed the cause of the trouble.

April 9th to 12th, doing nicely, but with intervals of pain after eating.

April 13th, noticed a slight enlargement on the outside of the cheek and thought it may have been caused by drenching; the teeth also being in bad condition. I filed them to prevent a recurrence.

April 14th, enlargement on cheek had disappeared and everything doing nicely, but still constipated; and I naturally thought that as the horse had not been eating much and being well physiced, that nature would do the rest later.

April 15th to 20th, had been administering rectal injections occasionally and the result was little pieces of dried-up material about the size of a hickory nut with a very foul odor. The animal at this period showed more pain, especially after eating, lying down very carefully, rolling on the side and tucking the forward feet up so that the soles were planted almost level on the sternum.

April 21st to 24th, during three days I observed that the lump on the side of the cheek would come and go and I also noticed that it did not appear until he commenced to eat and would disappear immediately after eating. The enlargement was about the size of an elongated egg and by pressing with the fingers would give one the impression of feeling plaster of paris just as it was about to set. As a student at the American Veterinary College, I remember Prof. Liautard showing us a similar case and diagnosing it as a salivary calculus of Wharton's Duct, and on operating he removed a smooth stone about half the size of the first finger and said it was the largest he had

ever seen and that such cases were extremely rare. In my experience I have seen two cases, and this case I am relating, in which nature tried to form a salivary calculus, but it was swallowed as saliva before it got a chance to harden. In my observation it commenced to dawn on me that the saliva being charged with such a material was being swallowed as saliva and was forming an intestinal calculus. Quite a fancy diagnosis to arrive at, but, the more I pondered the more firmly I was impressed, and I gave my opinion accordingly. The animal at this time also showed signs of distressed breathing and uneasiness, and the temperature, which had never exceeded 102° , was now 104° , with a wiry and rapid pulse, showing all the symptoms of enteritis.

April 25th, breathing very much labored and in great pain. I informed Mr. Rielly that it would be an act of humanity to destroy the horse, which he readily agreed to, and I also told him on post-mortem that I would not be surprised to find a calculus either in the stomach or intestines. The horse was chloroformed and on making an incision in the abdomen a flow of effete material and liquid made its appearance and also disclosed a rupture of the large intestine from an enormous amount of obstructed food. In one part of the intestine was a hard object which by its own weight had formed a natural pocket and which on examination proved to be a calculus weighing six pounds. By rough measurement it is 8 inches long, 6 inches thick, and about the shape of an egg. During the animal's sickness the urine was exactly of an azoturia character, and on examination found both kidneys abnormally enlarged, the right one being diseased and containing pus.

RUPTURED INTESTINE IN A MARE.

By GUS WHITE, G. M. V. C., Kyabram, State of Victoria, Australia.

I was called to see a pure-bred Clydesdale mare, aged about 18 years, and used principally for breeding purposes. The mare was running at pasture with foal at foot and on March 22 was yoked in a plow team. In the evening after the day's work symptoms of colic were noticed, but, as the pain was very slight, little notice was taken. On the morning of the 23d, as the mare was still in pain, I was requested to visit her.

Symptoms.—Anorexia, temperature 101.6° F., pulse 62, quick and very full; abdomen slightly tympanitic and loud borborigmi were heard on auscultation. Surface of body and

extremities normal. Conjunctivæ slightly injected. Fæces passed at regular intervals. The pain shown was of an intermittent character and evinced at intervals of about fifteen minutes, when the mare would go down and roll for a few minutes; then get up and stand at ease. The case was diagnosed as simple spasmodic colic and a draught consisting of spirits ammon. comp. ℥ii, tincture nucis vomicæ ℥ii, olei terebinthinæ ℥i, olei lini Oi, was administered. Another draught was left with the attendant, to be given in four hours if necessary.

On the morning of March 24th owner reported mare obtained ease about an hour after the drench was administered and that he thought it unnecessary to give the second dose, and that she had also eaten a small feed. About one hour later he returned to say the mare had died during his absence and requested me to make a post-mortem examination.

Post-mortem.—On opening the abdominal cavity a quantity



of fluid ingesta was noticed in the peritoneal sac. On further examination, a rupture about four inches in length was found in the floating colon, situate about three feet from the commencement of the rectum. The peritoneal surface of the bowels surrounding the lesion was intensely inflamed, showing that the accident had occurred some considerable time prior to death having taken place. The great colon was found to be rather more distended

than usual, but by no means impacted.

I am at a loss to understand why the animal showed no acute pain at any period of its illness, as we are generally told that in such cases the pain is of a most acute character and agonizingly persistent. I am also unable to explain the probable cause of the rupture, and have never before heard of a similar case in which symptoms and results of post-mortem were so misleading.

FORAGE POISONING CURED BY ARECOLINE.

By C. G. SAUNDERS, V. S., Toronto, Ontario, Canada.

On Sunday, May 19th, 1907, at 8 P. M., I was called to attend a horse belonging to a potato dealer. Upon examination I found the horse, an aged bay gelding, standing with his head jammed in the corner formed by the side of the stall and the hay rack, pulse small and weak, temperature normal. The animal was unable to back up, and when pushed over in the stall appeared to have lost all coördination in his movements. Anorexia was complete, but thirst appeared excessive, although there was complete inability to drink. The pupils were dilated and the breathing stertorous. Peristalsis was entirely suspended, the horse having passed no fæces since the night before. There were slight muscular tremors over the crural muscles. Urination and urine normal.

Upon inquiry I learned that he had been fed a quantity of half rotten and damaged potatoes during the previous week, but that he had showed no signs of illness until that morning (Sunday), when he refused his food. I also found the hay musty and of poor quality.

I diagnosed the case as encephalitis caused by faulty food stuff. Prognosis unfavorable.

Treatment.—Hypodermic of strychnine sulph. grs. i. Rectal injection of warm water. I called again on Monday morning and found little alteration, except that the pulse was stronger and that the bowels had moved. I then administered arecoline hydrobromate gr. $\frac{1}{2}$. Action began in seven minutes; profuse salivation and sweating, and in fifteen minutes the bowels were copiously relieved. Altogether three motions took place, the fæces being offensive and black in color. In half an hour action had ceased, the animal appeared brighter, the pupils less dilated and the breathing quieter. I saw him again in the afternoon, when he drank half a pail of water. Eyes normal and general appearance improved. I again gave strychnine sulph. grs. i, ordered a pail of water to be left with him and a handful of grass to be given in the evening if he would eat it. The next morning he was apparently as well as ever and ate his morning feed up with avidity. I left powders of nux vomica and ferri sulph. to be given three times a day, and requested owner to report. The horse went back to work on Thursday, and has worked ever since, has good appetite and is improving in condition.

I recommended his owner to buy better hay and to leave off feeding the potatoes.

NECROSIS OF THE DORSAL VERTEBRÆ AND RIB.

By A. W. BAKER, V. S., Brasher Falls, N. Y.

The patient, a three-year-old chestnut colt, owned by Seymour Munson, Massena, N. Y., was brought to the hospital for treatment February 16th, 1907. He had been bitten by another colt about one year and a half before, an abscess formed and was treated by a veterinarian in that vicinity for one year and three months, with no satisfactory results. The owner becoming discouraged, discontinued treatment for three months, and then brought him to this hospital, February 16th.

He was operated on February 21st and was discharged March 19th, with good results.



Upon examination, found the patient to be suffering from purulent necrosis of the dorsal vertebræ and superior extremity of the rib, also the adjoining tissues, including the intercostal space and lumbo-dorsal fascia and panniculus of a large area. The following treatment was

prescribed:

The patient was secured on the table, the area cleansed, shaved and properly disinfected. Made an incision through the skin about 20 centimetres, parallel with the spine; found a large proportion of the tissues necrotic, which were removed; curetted the bone, packed the cavity with antiseptic gauze, and stitched up the wound, which was not disturbed for 48 hours. Removed the packing daily, irrigated the area with hydrogen peroxide, then repacked with mercury gauze, dressed the out-

side with an antiseptic powder composed of boracic acid, acetanilid and subgallate of bismuth.

On March 19th the patient was discharged from the hospital with a small and healthy-looking scar, and on April 4th was all healed up except a very small space.

SUSPECTED STRYCHNINE POISONING.

By H. M. HALVERSON, M. D. C., Yankton, S. D.

After working an hour one morning, a gray mare, 12 years old, was taken suddenly ill, showing the following symptoms: Foaming from the mouth, jaws gradually losing their motion, tongue purple, and with spasms of the body.

As I was out of town, an employé was called, who diagnosed the condition as lockjaw, and gave the following drugs as a sedative: Tincture opii, aloes, spiritus ætheris nitrosi, and digitalis, mixed in water.

When I arrived at 8 P. M., temperature was 101° F., pulse 50, respirations 30, with nostrils dilated. On auscultation a grating sound in the left lung could be heard, but no sound could be heard in the right lung. I was undecided as to whether it was tetanus or strychnine poisoning. Gave fl. ex. belladonna and tincture of strophanthus in minimum doses. After a time I decided that the condition was due to strychnine poisoning, and gave two ounces of tannic acid. The owner thought my diagnosis likely, as in an adjoining field the owner had soaked corn in strychnine to destroy gophers, and scattered it along the edges of the field.

I now passed the stomach tube and injected a gallon of water, after which I began to syphon it out. The animal became delirious, broke away from the attendants, and fell over dead.

On post-mortem the lungs were found highly congested; ante-mortem clots in the heart ventricles. The left kidney was congested, but other organs were healthy, except the floating colon, which contained numerous ecchymotic spots. The contents of the stomach consisted of kernels of corn and grass.

(The post-mortem in this case was incomplete because of failure to make chemical test for strychnine.—R. R. B.)

DR J. R. SHAND (Chicago '07) sailed from San Francisco for Manila on May 5, on a two-year contract for veterinary service in the Philippines.

SURGICAL ITEMS.

BY DRS. LOUIS A. AND EDWARD MERILLAT, CHICAGO, ILL.

A WORD ABOUT LABORATORY DIAGNOSIS.

To a veterinarian in practice the phrase "laboratory diagnosis" implies something entirely out of his sphere, something requiring certain skill and knowledge that only a specialist possesses, and, instead of attempting to delve into its intricacies, he finds it more expedient to apply to the specialist whenever a diagnosis from the clinical symptoms is found uncertain or impossible. The extent, however, to which practitioners should apply to the laboratory to solve the mysteries they encounter, is a matter of serious moment, in that the growing habit will tend to make them less proficient in clinical diagnosis.

Without disparaging this admirable feature of modern medicine and speaking only from the standpoint of the veterinarian in practice, it is incontrovertible that the *keen power of perception* which is a veterinarian's most valuable asset, is not developed by leaving the matter of diagnosis to others. In short, to rush to the laboratory with everything would soon do much harm to the grand art upon which the value of veterinary medicine and surgery has always depended, *i. e.*, the art of clinical diagnosis. Nowadays, it is becoming customary to send a piece of tissue, a scraping, or a sample of a secretion to the laboratory, after only an insufficient physical examination, wait for a few days, and then place implicit confidence in the report presented, in spite of the well-known limitations and uncertainties of the exclusive laboratory diagnosis.

If the laboratory diagnosis was always a correct one, it would be a welcome substitute for the much more difficult method that must always remain subordinate to the development of the special senses and the judgment of the diagnostician; but unfortunately every practitioner of experience knows its shortcomings when exclusively depended upon, when the reports are not supplemented by their own conclusions or when the two do not harmonize. In fact, the revelations of the laboratory when not coupled with the phenomena presented by the patient or the lesion, might better be left out of the question altogether, because they are so often a disappointment and

not infrequently they puzzle instead of enlighten the perplexed diagnostician.

The tendency to place absolute dependence upon the decisions sent from the laboratory, often by men devoid of knowledge outside of their narrow workshops, is as harmful to the progress of clinical diagnosis as it is beneficial to the advancement of research in general. The achievements of the old pathologists were marvelous; it is a pity if the method by which they attained those achievements should wane.

* * *

RADICAL NAIL-PRICK OPERATIONS.

Whenever the navicular sheath becomes the seat of an infective inflammation with copious discharge of synovia, from a nail-prick, bruise or any other channel of entrance, the modern method of treatment consists of thinning the sole and frog, removing all of the sensitive frog from the level of the navicular bone forward, so as to expose the plantar aponeurosis, dividing the latter transversely and then treating the exposed bursa with potent antiseptics. This radical operation is always followed by an immediate improvement of the patient's serious state of disability. The temperature drops two or three degrees, the appetite returns and the patient lies down for a good, peaceful rest, often for the first time in several days. The severe lameness continues unabated for two to three weeks and then gradually improves. At the end of eight weeks to twelve weeks the patient, still somewhat lame, is put to work in hopes that the claudication will gradually disappear, but, unfortunately, the expected improvement does not arrive and the patient continues to limp more or less, week after week and month after month. Finally the patient is sold as a cripple by the disappointed owner, who seldom fails to vent his wrath upon the new operation that was used in lieu of the old linseed poultices which had never failed him in the treatment of nail-pricks. And the surgeon, poor devil, if he escapes a suit for malpractice, usually forfeits his hard-earned fee.

Seriously, the radical operation for nail-pricks must be approached cautiously, because of certain prevailing prejudices in favor of old lines of treatment and also because it is sometimes actually harmful. Under sensible antiseptic treatment and good drainage, purulent discharges from the navicular bursa sometimes terminate fatally, sometimes they leave the patient a permanent cripple, but sometimes they make exceptionally

good recoveries. From our observation on many cases, this order of things is not materially changed for the better by the much-lauded radical operation. It is true that certain serious cases, which would probably die under the old lines of treatment, are saved, but since not a case operated upon satisfactorily recovers from the lameness within a reasonable time, and many are very lame for all time thereafter, the operation deserves the discredit of harming all of those cases which would have made good recoveries under the old lines of treatment. If it is insisted upon as the universal treatment for this affection, it deserves to be condemned, but if reserved for the preservation of life in bad cases, it is indeed commendable and worthy of the highest praise. The selection of cases must be based upon the amount of lameness, the acuity of the infection, the local and systemic disturbances, and the probable resisting powers of the patient. So long as the toe is placed to the floor in walking and there is no swelling about the coronet at the heels and in the hollow of the heel, the operation should be postponed, especially if the patient's general condition remains fair. On the other hand, when there is a high fever, acute pain that prevents the support of weight, acceleration of the respirations, a loss or suspension of the appetite, and an acute, threatening local inflammation that manifests itself by swelling about the heels and by bulging of the velvety tissue through the pared hoof, the operation should be insisted upon as the only sensible method of intervention. Between these two extreme cases are all the intermediate ones which will tax the judgment of the surgeon as well as the temper of the client.

It may be claimed that neurotomy should be resorted to in the treatment of the lameness that supervenes this operation, but neurotomy is not a pronounced success in dealing with this sequel. Sometimes it does not even modify the lameness, and in the hind foot when tibial neurotomy is performed the patient's usefulness will be of exceedingly short duration. *Entre nous*, be careful, as the results at best will bring but little applause.

DR. W. H. DALRYMPLE, Veterinarian Louisiana Agricultural Experiment Station, read a paper recently before the Louisiana Sugar Planters Association, on "The Intelligent Management of Plantation Stables." It has been published in pamphlet form, and makes a neat little brochure of twenty pages.

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By Prof. A. LAUTARD, M. D., V. M.

FRACTURED FIRST RIB [*W. E. Ison, F. R. C. V. S.*].—The record of two cases where the symptoms were very different. In the first case the following were observed: The animal was standing with near knee flexed, toe resting on the ground about on a level with the other foot, elbow very much dropped and there was a large hollow over the great triceps muscle. The horse could put no weight on the leg, and in trying to do so sank down until his sternum nearly touched the ground. He could extend the leg, and neither manipulations nor pressure over the anterior rib caused any pain. He was kept three weeks and then destroyed. He had a comminuted fracture near the head of the bone with very little attempts at repair. . . . The second case is that of a mare that became lame after a jump. She walked sound but trotted lame on the off fore leg. She had a short step and slight dragging action of shoulder lameness. There was pain in flexion and extension. Treated for ten days, she seemed to recover and went exercising. Two days later she fell, cut her knees, was laid up; put at work again, had another accident, injured herself so badly that owner had her destroyed. She had a fracture of the first rib, with a good deal of bony deposit around the ends of the broken bone.—(*Veterinary Record, April.*)

A CASE OF OBSCURE LAMENESS [*E. Wallis Hoare, F. R. C. V. S.*].—A four-year-old gelding is bought with certificate of soundness. After a few weeks, after a run, he is stiff behind. This condition increases. After a long day of work he shows marked lameness in the near hind leg and a peculiar dragging action in the quarter. The next morning he is perfectly sound in his gait. And thus the case kept up for a few weeks. Talking with another veterinarian about the case, this latter gentleman suggested that a bad fitting saddle might account for the trouble. At the next visit, the author examined the saddle and found that it fitted very badly and pressed in an uneven manner on the near side of the loins. The smallest pressure on that region was very painful. A new well-fitting saddle settled the

condition by the disparition of the lameness.—(*Veterinary Record, April.*)

FRACTURE OF THE ARYTENOID CARTILAGE [*J. B. Wolstenholme*].—A mare had developed severe roaring since three months. Her health has been very good all along and she was able to do light work. As the roaring was very loud, and the animal being quite old, no treatment was recommended and she was destroyed. On dissecting the larynx, it was found that the roaring was due to a fracture of the left cartilage with tumefaction of the mucous membrane. There was considerable venous congestion, but the dilator muscles were found normal in size and in color on both sides of the larynx. The glottal opening was much diminished and unsymmetrical. The fracture was about half an inch from the anterior border and extended the full width of the cartilage. This anterior portion had become reunited to the remaining cartilage, but at a right angle and in such a manner as to obstruct the lumen of the glottis.—(*Veterinary Record, April.*)

RABIES IN A GOAT [*Chas. W. Pate*].—A goat was bitten by a rabid dog, but showed no symptoms of rabies for thirty-six days. The dog also bit a woman and some fowls. These died soon after, but the woman being cauterized has so far escaped the disease. The goat was bitten at the root of the tail, the right flank and the sheath of the penis. The symptoms observed were as follows: Much bleating, animal seemed in pain and appeared to strain much as if constipated, but defecated and urinated without difficulty. Abdomen was very tender to the touch and the animal attempted to bite and butt, if one touched it. Appetite good, animal ate small pebbles, sand and other foreign bodies. He was constantly biting his wounds and more particularly the sheath of the penis. Temperature 105-6° F. On the second day he had paraphymosis and voided urine with difficulty. He tried to butt and gore a stone thrown to him; he also snapped at the end of a stick used to draw his attention. He had the characteristic vacant stare of rabies. The tongue was soiled and slightly protruding. After two days he refused food, drank a little water. The animal got hoarse and its bleat sounded like the bark of a dog. When he laid down, he did not do it on his knees first, but fell on his haunches and then laid on his side. He died after three days of sickness. Nothing particular was found at the post-mortem. Inoculation of its medulla to a rabbit confirmed the diagnosis.—(*Veterinary News and Jour. of Tropical Veterinary Science.*)

A LEIOMYOMA OF THE TERMINAL PORTION OF THE ŒSOPHAGUS IN A DOG [*A. E. Mettam, M. R. C. V. S.*].—Irish terrier, 12 or 13 years old, had enjoyed good health up to a fortnight ago. He vomited freely and showed weakness of the hind legs. He had a peculiar staring appearance, pupils dilated, neck stretched and fixed. To all appearances was blind, as he knocked against every object in his way. Sedatives failed to stop the efforts at vomiting. The dog was destroyed. The post-mortem showed that the stomach was pressed against the diaphragm and a firm body as big as a ball could be felt between the stomach and diaphragm. The growth involved the termination of the Œsophagus as it enters the stomach. Its thickest part measured three inches. The tumor was of a pale pinkish grey color and on section showed a number of whitish specks like plaster. In structure it was a leiomyoma.—(*Veterinary Journal, April.*)

CANTHARIDES POISONING IN A HORSE [*Herbert King, M. R. C. V. S.*].—A gelding was convalescent from pneumonia, but being somewhat constipated, orders were given that half a pint of linseed oil be administered. Through mistake he received half a pint of a mixture made of linseed oil 5 ounces, oil terebinth. 5 ounces, and cantharides powder 14 drachms. The results were: Mouth and lips much blistered, animal distressed, blowing and passing large quantities of urine, pulse was frequent, quick and feeble. No particular abdominal pains were exhibited. Mouth and throat very sore, great dribbling. Excessive soreness of the neck and along the Œsophagus. All food refused except later, when the animal took some gruel. The urine soon became bloody and slight abdominal pains manifested themselves. Death occurred on the tenth day. Post-mortem: Kidneys much inflamed and with large abscesses. Bladder had some large hæmorrhagic spots. Stomach ulcerated.—(*Veterinary Journal, April.*)

SARCOMATOUS TESTICLE IN A DOG [*H. Gibson, M. R. C. V. S.*].—Fox terrier had a large swelling in the perineum, which looked like a scrotal hernia. It was soft, but along the prepuce contained a large hard lump. Chloroformed for operation. When the swelling was punctured a pint of blood escaped, and on opening it up a hard mass was found. It was the testicle, which was removed with the ecraseur. The organ was as big as one's hand closed, and when examined with the microscope it proved to be a sarcomatous degeneration of the organ.—(*Veterinary Journal, April.*)

NOTES ON TWO CASES OF RUPTURED TRACHEA [*S. H. Gaiger, M. R. C. V. S.*].—The history of a dog whose body became enormously swollen and puffy, due to subcutaneous emphysema. His nose poked out, his four legs were stuck outwards, and the animal was unable to stand on them. With an incision made in the skin of the neck, most of the air could be squeezed out by pressure, but as soon as this was stopped, the swelling would return at once. The dog died from suffocation. Post-mortem: All the tissues of the neck dissected were infiltrated with air, and muscles, arteries, nerves, trachea and œsophagus dissected out. The trachea was found ruptured half way between the larynx and the first rib. In the second case the lesions were found in the thoracic portion of the trachea. The case occurred in a sheep and was found badly infected with *Echinococcus polymorphans*.—(*Veterinary Journal, April.*)

GUT-TIE IN CATTLE [*W. W. Grasby and S. Reynolds, M. R. C. V. S.*].—A quite interesting history of 13 cases of the trouble in cattle, with the excellent results obtained by the authors with a simple surgical operation. In the presence of the various abdominal symptoms presented by the animals, colics, constipation, rectal examination, etc., an operation was decided upon and performed as follows, after all antiseptic precautions were taken: "The incision is made high up in the right flank, and the skin is cut smartly, this being the part of the operation where the greater sensation is shown. The wound is made sufficiently large to admit the hand and arm, and while exploring the abdominal cavity the operator has a clean piece of linen, soaked in carbolic solution, wrapped around the arm just above the elbow, as an additional antiseptic measure. The strangulated portion of the bowel is, as a rule, easily found and the cord constricting it feels to the fingers like a fibrous band, no doubt the peritoneal covering of the spermatic cord. It is rather tough to cut and the instrument used for the purpose is a curved hook-bladed knife. The external wound is sutured and a broad bandage applied around the body." Of the 13 cases recorded, five operated upon recovered, six were slaughtered without operation and two died from complications which rendered interference useless.—(*Veterinary Journal, April.*)

A CASE OF STRYCHNINE POISONING [*George McCall, M. R. C. V. S.*].—The history of a fox terrier which exhibited symptoms of strychnia poisoning and was treated with chloro-

form inhalations and apomorphine first. Later on he received hydrochlorate of morphine, which was repeated three times, and finally recovered.—(*Veterinary Journal*, April.)

OBSTETRICS IN THE MARE [*Anton Tapken, Official Veterinarian at Varel*].—This article is a translation from the *Monatshefte für Praktische Tierheilkunde* by Prof. W. L. Williams, N. Y. State Veterinary College. The article refers principally to the various anomalies in dystokia that one may meet with in practice and which are principally presented as the result of feeble labor pains, version of the uterus, torsion of the uterus, deviation of the head, dystokia due to flexure of the posterior limb, breech presentation, etc. The article is illustrated with a number of plates. Demonstration is given by the history of cases in several of the conditions alluded to, and the translator, who is, we all know, an expert in obstetrics, has added a number of notes and comments of great value.—(*Veterinary Journal*, April.)

GERMAN REVIEW.

By J. P. O'LEARY, V. M. D., Bureau of Animal Industry, Buffalo, N. Y.

BACTERIA IN THE HEALTHY BODY TISSUES AND THEIR PORT OF ENTRY [*Dr. Selter, Bonn*].—According to the investigations of S., the lung, as a general rule, cannot be considered as a germ-free organ. Frequently spore-forming bacteria are found in it. Beside these, we also find pneumococci and other virulent bacteria. Violent inspirations may dislodge small particles containing bacteria from the oral mucous membrane and bring them into the peripheral parts of the lung. In the act of mastication or deglutition bacteria may be detached from the oral mucous membrane and be transported into the lung during inspiration. From the lungs the germs gain the bronchial glands. The liver, spleen, kidneys and blood are germ-free under normal conditions. The macroscopical intact intestinal wall is not wholly germ-proof. The perforating bacteria are held in check by the mesenteric lymph glands; also bacteria pass through the unabraded skin, the author states, but these are caught up by the subcutaneous lymph vessels. The fact that the organs and blood are free of bacteria is not altogether due to the impenetrable structure of the lung tissue, intestinal wall and skin, but rather to the imperviousness of the mesenteric and other lymph glands.—(*Zeitschrift für Hygiene*.)

AN ENORMOUSLY ENLARGED SPLEEN IN A HORSE [*Abattoir Vet. Brandenburg, Kattowitz*].—B. reports that whilst engaged at his customary duty of meat inspection in the abattoir at Kattowitz, he found a spleen in a horse which differed considerably from the normal spleen. The organ weighed 35 lbs., or, in other words, it was from 10–12 times the weight of the ordinary spleen of a horse of the same size. In length it measured 79 cm. (about 31 inches), width 44 cm. (18 inches), maximum thickness 10–11½ cm. (4½ inches). The horse was a brown gelding, a light wagon horse, in fairly well nourished condition, about twenty years old, weighed about 800 lbs., and showed during life no symptoms of disease; on post-mortem examination no other lesions were discernable. The spleen itself was fairly rich in blood and somewhat dark in color. Apart from its extraordinary size and abnormal weight, the organ did not present any deviation in form or structure from a normal spleen.—(*Berliner Tier. Wochen.*, No. 51, Dec. 20, 1906.)

DISEASES OF THE NAVEL IN FOALS AFTER BIRTH [*Ed. Mieckley*].—After a brief *résumé* of the anatomical and physiological relations of the placenta and umbilical cord, Mieckley next takes up the diseases of the navel in the following order: (1) Umbilical hæmorrhage. This is a very rare disease, which occurs a few hours after birth, the blood escaping in a thin stream or in drops. As to the cause, from the cases under observation, it is possible to ascribe as a factor that there exists an extreme flaccidity of the muscular coat of the artery which hinders its closure. The foals in question are to be considered as born with a weak constitution. (2) Escape of urine in drops, due to insufficient closure of the urachus. These conditions are amenable to treatment; through the use of astringent dusting powders, in a short time a cure is effected. (3) Tumefaction of the navel. This appears a few days after birth; the swelling may attain the size of a hen's egg, is oedematous and slightly painful and is confined solely to the subcutaneous connective tissue. Treatment.—The application of a discutient remedy, as tincture of iodine, or it may heal through suppuration. (4) Inflammation of the navel. This is a very common disease, of which there are three kinds; the first is nothing more than a mere thickening of the cord accompanied by slight pain; only that portion of the cord exterior to the abdominal wall is affected. Treatment consists in the application of iodine preparations, absorptive remedies and alkaline soaps. The second is a less favorable malady. A suppurative throm-

basis of the umbilical vein takes place; in this instance the pathological process extends only to the umbilical opening. The remedy most suitable in this case is section of the umbilical vein and ligating the stump of the cord. A cure is usually effected in about ten days. In the third kind the suppurative process extends to the abdominal cavity; the disease not only affects the vein, but also the artery. This form usually terminates fatally. Treatment is of no avail (even the intravenous injections of collargol). On post-mortem examination we find enlargement of the mesenteric glands, abscesses in the liver, and embolic nodules in the lungs. The lesions present are those of a general pyæmic infection, which, according to Mieckley, may be confounded with the disease "Füllenlähme, pyæmic arthritis." In opposition to the views of Bollinger, Frank and others, the author asserts that the so-called Füllenlähme is an infectious disease, which attacks the young *in utero* and is not solely dependent upon umbilical infection. In order to verify his opinion, M. refers to the post-mortem lesions, which have nothing in common with pyæmia. That complications of the two diseases may occur is a matter of course. (5) Omphalocele. This usually occurs through rupture of the navel during the separation of the cord. Frequently there exists a peculiar muscular weakness present, which is hereditary and which does not permit sufficient closure of the umbilical ring. The smaller hernias frequently heal spontaneously; the larger require surgical interference. For treatment, the latter necessitate the use of applications of strong corrosive acids, vesicating ointments, or compression plasters or trusses; finally an operation. In the absence of complications, Mieckley recommends the use of ligatures.—(*Zeitschrift für Gestützkunde*, 1906, 7 Heft.)

INVESTIGATIONS REGARDING AN INFECTIOUS-LIKE DISEASE IN THE MOUTHS OF CATTLE ("Gutartige Maulseuche;" "Stomatitis Papulosa Bovis Specifica") [*Prof. Ostertag and Dr. Bugge*].—Ostertag and Bugge had occasion to study an infectious disease of the oral mucous membrane which had appeared among Bavarian cattle. They took the material for investigation from one of the animals at hand. The excised pieces of mucous membrane were transplanted into pockets formed on the inferior surfaces of the tongues of 5 calves. 13 days after the ingrafting, small red spots appeared, scattered over the mucous membranes. Further it was found possible to transmit the disease by means of the blood and filtered blood

serum. Older animals were more difficult to infect than younger. That spontaneous transmission takes place between animals was demonstrated by the fact that when 5 uninoculated healthy calves which had stood in the same stall with the 5 infected calves, four contracted the disease. Clinically the disease is characterized as an apyretic circumscribed stomatitis, accompanied by the formation of small nodules with inflamed bases. The degenerated epithelium is exfoliated at points, leaving behind small sharply-defined circumscribed ulcers. The disease may be prolonged for months. Stomatitis papulosa infectiosa may be confounded with sporadic aptha and with foot-and-mouth disease. It differs from both these diseases through lack of vesicles, and besides from foot-and-mouth disease by being limited to the oral cavity, skin and claws not being affected.—(*Zeitschrift für Inf. Krank. par. Krank. und Hygiene die Hausture*, Bd. I., S. 3.)

FRENCH REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

A NEW CASE OF AUTO-MUTILATION IN A DOG [*P. Charitat*].—An eighteen-months-old female collie has just recovered from an attack of distemper, but has yet a marked weakness behind. Brought to the author, he notices that the tail is much swollen and the hairs are stuck together with moisture. The animal has a great tendency to bite her tail with rage. Indeed after clipping the hairs, the tail appears covered with gangrenous spots here and there, upon a space of about 10 centimetres. Above and below the skin is normal. Free incisions are made and antiseptic applications prescribed to be made frequently. Between 150 and 200 points of actual cauterization are applied to combat the myelitis. The next day the animal seems to walk better, but the gangrene has spread. There is great itching. Amputation of the tail is performed, and the animal secured in such a way that she cannot bite herself. Notwithstanding she is found the next day covered with blood. The wound measures 10 centimetres in length; the last vertebræ are amputated; the spinal marrow is exposed; the anus entirely destroyed and the rectum is widely open. After tightly securing her, the animal is submitted to serum and caffeine, oxygenated water dressing and heavy feeding. At first things seem to go on well,

but, all of a sudden, the bad symptoms reappear and the poor brute is destroyed. The case was one of typical auto-mutilation, whose cause was unexplained.—(*Record de Médecine Vétérinaire.*)

SUB-CAPSULAR CYST OF THE KIDNEY IN A PIG [*E. Thirion*].—A lesion found in a slaughter-house. A pig prepared for the butcher has in the greasy mass covering the right kidney a development more marked than on the other kidney. It is constituted by a round tumor, soft and rosy in color. It is a cystic kidney, weighing 3 kilogs 500 grammes (say seven pounds) while the organ of the opposite side weighs only 220 grammes.—(*Rec. de Méd. Veter.*)

TREATMENT OF NAVICULAR DISEASE BY LIGATURE OF THE DIGITAL ARTERY [*M. Georges Dumas*].—Remembering the case that had been already recorded on the subject, the author promised himself to try the treatment on the first occasion. This is the record of his case. A horse, aged twelve years, has navicular disease of both fore feet. The diagnosis has been confirmed with cocaine and the animal has been submitted to all kinds of treatment. Dumas, fearing a failure with neurotomy, decides to try the ligature of the digital artery. The animal is thrown and the internal digital artery of the left leg is ligated. As soon as the animal is up, instead of improvement, he shows a great deal more lameness, to such extent that he cannot stand on his leg. The next day he is perhaps better, but yet very lame. After ten days the wound is all healed. He is improved some and this condition gains little by little, although the lameness is yet much marked and he is unfit to work. He is then turned out and from week to week he gets better, until after three and one-half months of rest, he is entirely well and able to resume his work, which he keeps up, although it is very hard. Conclusions: Ligature of the digital artery ought to be recommended, when neurotomy cannot be performed. Increase of the lameness after the application of the ligature is not alarming; the symptoms diminish and pass away after a varying length of time.—(*Revue Générale de Medec. Veter.*)

THE USE OF ASPIRINE [*Mr. Mouquet*].—The analgesic, antirheumatismal and antithermic properties of aspirine are well known, but it is as an antithermic preparation that the author has resorted to it, in one case of pneumonia and one of influenza, to test the antithermic properties in comparison with those of quinine, which he has been in the habit of using. In the two cases the aspirine was given mixed with honey at the

dose of 20 grammes in fractions of 5 to 7 grammes, about two or four hours apart, in such a way that the whole dose was taken before the stage of exacerbation in the temperature. Given in a different way, the result is not as satisfactory. The dropping in the temperature has varied between one and two, or even more degrees. The author has also tested the anti-rheumatic properties in cases of rheumatoid synovitis following pneumonia, but the results are too incomplete to be taken in consideration, for the present at least. Tested by other practitioners the results did not prove as satisfactory as with the author, who, however, is far from attempting to present aspirine to take the place of quinine, so extensively used.—(*Bullet. de la Soc. Cent. de Méde. Vet.*)

INTESTINAL OBSTRUCTION BY A LARGE OVARIAN CYST IN A MARE [*Mr. Jacoulet*].—"Victoria," a seven-year-old mare, has never been very sick and has done pretty regular work, when she is taken with colic and symptoms of obstruction, rapidly complicated with congestion, which cannot be relieved, and she died. At the autopsy, there was extensive distension of the different parts of intestinal tract, with marked disseminated congestion and packing of partly digested food in both colons. There were no peritoneal lesions. The pelvis was completely filled with an enormous cystic tumor of the left ovary. This neoplasm was slightly oval and bosselated in shape; it was unilocular, with thick walls, and contained four litres of clear citrine liquid. The tumor weighed 5 kilogrammes, and pressing on the rectum against the sacrum. In front of it the rectum was full of matters pressed and adherent to the mucous membrane. The bladder was empty. It was regrettable that rectal examination had not been made to establish the diagnosis and surgical interference resorted to either in the shape of laparotomy or through the vagina, as in normal ovariectomy.—(*Bull. de la Soc. Cent. de Méde. Veter.*)

INTESTINAL PERFORATION AND ABNORMAL ANUS IN A MARE [*P. Vautrin*].—The subject of this observation is an Anglo-Arab mare, nineteen years old, that had never been sick. She was used by an officer in the army, who rode her very hard. The last day she was ridden she surprised her owner by jumping across a wide ditch. The second day after, she had in front of the udder a small swelling, flat, cedematous, which is attributed to a prick of some sharp body and considered as of no account. The mare had had an umbilical hernia treated with nitric acid and the skin of that region was hairless and

white. After a week the swelling remained the same and the mare was worked. Later on the tissues around the swelling became harder and the centre rather soft. Fourteen days after the first manifestations, this soft spot had ulcerated and on a level with the umbilicus there was a wound with turned edges, from which escaped liquids having a very bad odor. Around the wound, there was undermining of the skin, which was loose and formed a pouch with an infundibulum, formed by the abdominal wall. A strong odor of gangrene came from that opening. Washing injections made in these brought out alimentary substances and small pieces of hay and also seeds of oats. It was evident that there had been an intestinal tear, independent of the abdominal cavity and adherent to the wound of the abdominal wall. It was a true accidental anus. The mare kept on eating and drinking, although liquids escaped more or less through the ventral opening, when she walked. Taking in consideration the age of the animal, the fact that the trouble had already existed several days and that the anus was comparatively old, no attempt was made to treat her. At the post-mortem, besides the presence of more or less food *débris* found under the skin, there were evidences of local gangrene of the surrounding tissues. The hernial sac was found perforated with two symmetrical openings. A loop of small intestine was attached by its great curvature to the umbilical region by a thick fatty peduncle. This involved the anterior part of the duodenum at about one metre of the pylorus. In its internal face, there was a round opening and it looked as if through it the mucous membrane had passed and formed a hernial pouch as big as a small orange. This pouch has two tears, one at each extremity of its great diameter, and it is through these that the escape of the intestinal contents could take place.—(*Revue Générale de Méde. Veter.*)

DR. J. A. BARNETT, Edwardsville, Ill., has been elected Circuit Court Clerk of Madison County.

THE REVIEW IN AUSTRALIA.—“I must take this opportunity to say a word in favor of the REVIEW. I have been a subscriber for the past two and a half years, and now would not be without it for any consideration. I cannot speak too highly of the excellent articles, reports of cases, etc., that I have read in the REVIEW, nor can I say how much help it has been to me in my practice. May its pages never grow less.—(*Gus White, G. M. V. C., Kyabram, Victoria, Australia.*)

ARMY VETERINARY DEPARTMENT.

PRELIMINARY REPORT OF THE ARMY LEGISLATIVE COMMITTEE OF THE A. V. M. A.

Doubtless the army veterinarians and those greatly interested in their welfare, which really means the welfare of the entire profession, professionally and socially, are wondering what the Committee on Army Legislation of the American Veterinary Association has been doing this winter, and why they have been so silent.

The fact of the matter is, this committee has been very active and has done everything in its power to advance army legislation, but it has not been using its ammunition when the enemy has been out of sight.

When your committee was appointed, it started the work in hand by first thoroughly analyzing "the bill to increase the efficiency of the veterinary service of the army," remembering the old adage, "Beware of the Greeks bearing Presents."

A bill drawn and approved by the War Department on any veterinary matter pertaining to the Army will bear careful scrutiny; such is the opinion of those who have watched the constant efforts of the War Department to prevent certain very necessary Army veterinary legislation for 20 years.

To begin with, a grave suspicion arose in the minds of the committee relative to the reappointment of those veterinarians now in the service, as provided in this act.

Sec. 2, of this act prescribes for an examination as to the habits, moral character, mental and *physical* ability of veterinarians who seek appointment under this act.

Sec. 5, provides that veterinarians having 15 years' service shall be first eligible for appointment and may be appointed without examination, and if within this description and having reached 64 years of age, shall be appointed and retired.

Sec. 6, provides for the men having less than 15 years' service, who shall be appointed subject to examination as provided by this act (*Sec. 2*).

Sec. 8, provides that veterinarians now in the service who shall not be appointed under the provisions of this act shall be discharged from the Army with three months' pay.

In other words, it seemed clear to the committee that any

veterinarian now in the Army, with less than 15 years' service, must pass this examination as to mental and *physical* ability before he can be reappointed, and should he fail physically, he would be discharged from the Army with three months' pay.

Having been informed by an Army veterinarian that there were at least three veterinarians in the service, having less than 15 years' service, who could not pass a physical examination on account of wounds, accidents and diseases contracted in the line of duty, it seemed of vital importance that these men, among whom are some of the brightest men in the service, should not be ruthlessly thrown out of the Army with three months' pay.

If the committee has been misinformed regarding these men, it begs leave to be corrected.

Thinking that we might have misconstrued the bill, we called upon an officer of the General Staff of the Army, who stated that our construction of the bill was correct. Then we proceeded to the Surgeon-General's office and asked whether they would pass physically, certain veterinarians of the Army, naming their alleged unsoundness (one having lost a leg in the service), and were informed that men having such physical ailments could not be passed.

The Judge Advocate General of the Army was then interviewed, the conditions explained to him, and his opinion was:—"That any veterinarian now in the service, who had less than 15 years' service, who did not pass the examination (including physical) as prescribed by this bill, would be discharged with three months' pay, unless the President waived such physical examination." Knowing what pressure was necessary for the latter we saw at once that an injustice was being perpetrated on the younger men in the service; men who have passed a severe mental and physical examination before their appointment and who are to-day the backbone of the service.

We then sought the aid of Congress to overcome this wrong.

Senator Warren, of Wyoming, the Chairman of the Senate Military Committee, saw at once the error of the General Staff and the injustice of this bill, but he explained how difficult such a matter was to correct on the floor of the Senate.

He stated he would do his utmost to correct the defect in this bill and would endeavor to have the following clause inserted after Sec. 6 of this bill: "If found disqualified for active service on account of wounds or disability incurred in the line of duty, their cases shall be disposed of in conformity with

the requirements of Sec. 3 of the Act approved October 1, 1890" (26 Stats., Pg. 562).

He stated that the bill had very little or no chance to be considered during the present session.

Your committee then sought the assistance of that steadfast friend of the Army veterinarian, Ex-Gov. J. A. T. Hull, of Iowa, the Chairman of the House Committee on Military Affairs. He had not noticed this dereliction in the bill, as prepared by the General Staff, but readily consented to add the clause previously referred to. This clause would retire on three-fourths pay, any veterinarian, now in the service, who failed to pass the physical examination, provided that such physical disability was contracted in the line of duty. He stated to your committee that we were only wasting our time at this session of Congress, since no military legislation would be considered, save the Artillery Reorganization Bill, and on his advice we discontinued our active work at the Capitol.

His advice and prediction later proved to be correct. Several personal interviews with Capt. Hull have interested him in this bill and we feel that we have in him an active and valuable helper in our undertaking.

Believing that if the clause we had insisted on having added to the bill, was endorsed by the War Department it would be more effective, the following letter was written to the Secretary of War:

February 2, 1907.

"Hon. W. H. Taft, Secretary of War, Washington, D. C.

"SIR:—On behalf of the American Veterinary Medical Association, I beg leave to call your attention to S. 3927, a bill 'To increase the efficiency of the veterinary service of the Army,' and to point out the injustice which would be done to several of the best veterinarians in the Army, if this bill, in its present form, became a law.

"No doubt this point was entirely overlooked by the General Staff in the preparation of this bill.

"Section 2 provides, among other qualifications, that each veterinarian shall pass a satisfactory examination as to habits, moral character, mental and *physical* ability, etc.

"Section 5 provides that veterinarians with fifteen years' services shall be first appointed without examination and if sixty-four years old and within the fifteen-year clause, shall be appointed and retired.

"Section 5 provides for the examination and appointment *after examination*, of those men with less than fifteen years' service, but makes absolutely no provision for those men with less than fifteen years' service, who may be physically disqualified before a Board of Army Surgeons for *physical* disabilities contracted in the line of duty. These men may, under this bill, pass the mental examination and those relat-

ing to moral character, professional qualifications and general fitness for the service, and no man now in the service objects to taking such an examination, but men who have served less than fifteen years, and who were required to pass a stringent *physical* and mental examination prior to appointment, object most strenuously to being thrown out of the service with three months' pay because they cannot pass the physical examination provided by this act.

"Dr. Lawrence, Veterinarian of Cavalry, lost his leg in the Philippines, by a horse falling on him, but he gallantly rides one-legged with his regiment. Dr. Hunter, Cavalry veterinarian, one of the most accomplished veterinarians in the Army, is now physically disqualified, I am informed. Dr. Gage, Artillery veterinarian, contracted amœbic dysentery in the Philippines and would probably be disqualified by this act.

"Surely, Mr. Secretary, you never meant to endorse this bill which will dismiss with three months' pay, some of the most accomplished veterinarians in the Army, and I am informed by prominent officers of the Army that such will be the case if this bill passes in its present shape. Senator Warren and Representative Hull were not aware of these conditions until I called their attention to this injustice and they are now in favor of making some provision for these men, but very much regret that it was not done by the General Staff in preparing the bill, for you well know, sir, the difficulty encountered on the floor of either house with amendments to bills.

"I beg leave to submit an amendment to Section 6 of this bill which I attach to the enclosed bills, and on behalf of the Army veterinarians and of the national body I represent, I trust you will endorse this amendment and forward the same with a favorable report to both the Military Committees. I am, sir, Very respectfully,

"J. P. TURNER, V. M. D.,

*"Chairman Committee on Army Legislation,
American Veterinary Medical Association."*

His answer, which doubtless will be interesting reading to the Army veterinarians, is herewith appended. It will greatly surprise many Army veterinarians, who were stripped and required to do recruit stunts, to know that they evidently were not examined physically.

It seems strange that the War Department would accept men without knowing whether they had two legs or eyes or whether they had hæmorrhoids, knowing that they were to enter the mounted service.

It may be that these physical records are missing, but we personally know that a very severe physical examination was given the first class examined and several men were disqualified on account of physical defects, one, a student of your Chairman, was rejected physically, but was later accepted after undergoing a severe surgical operation to remove such disability. This young man will hardly agree with the Secretary of War's statement regarding a physical examination.

"WAR DEPARTMENT, WASHINGTON, February 12, 1907.

"*Dr. John P. Turner, V. S., 918 O St., N. W. Washington, D. C.*

"SIR:—I beg to acknowledge receipt of your communication of the 2nd instant, inviting my attention to Senate 3927, a bill 'To increase the efficiency of the veterinary service of the Army,' in which you point out an apparent injustice to two veterinarians of Cavalry and one of Artillery now in the service.

"In the original draft of this bill careful consideration was given in the interest of all concerned as to length of service that should act as a waiver of the examination. This length of time was determined as fifteen years. The record of Dr. Lawrence shows that he was appointed April 25, 1903; Dr. Hunter, July 25, 1900, and Dr. Gage, January 27, 1903. It will therefore be observed that their length of service falls far short of that considered proper for a waiver of examination at the time the bill was drawn. The records also show that no physical examination was required on entering the service, and it therefore cannot be known whether they were physically fit at that time or not.

"For the reasons above stated, therefore, it is not deemed wise to recommend the adoption of the amendment as proposed in your letter.

"Very truly yours,

WM. H. TAFT,
Secretary of War.

"*I F. B.*

This committee has received many letters from veterinarians personally interested in this bill urging us to have it enacted into law as drawn by the General Staff. We believe, however, that we have been acting in the best interests of all concerned.

The following account of a banquet given by the "Veterinary Medical Association of the District of Columbia," May 25, 1907, may prove interesting to Army veterinarians:

"The initial banquet of the Veterinary Medical Association of the District of Columbia was held at the Hotel Dewey Saturday night. The recent legislation governing the practice of veterinary surgery in the District, and the prominent position this profession has acquired were the themes enthusiastically discussed. More than fifty members of the association and their guests, including the Secretary of Agriculture and Representative J. A. T. Hull, were present.

"The action of the Fifty-ninth Congress in enacting the law regulating the practice of veterinary surgery in the District, restricting it to only legitimate veterinarians, and creating a board of examiners to enforce the requirements, was referred to in most complimentary terms by the speakers. With such legislation and the support of Congress, and of such men as Secretary Wilson, who is known as a firm believer and ardent advocate of legitimate veterinary practice, the members of the association predict a great future for the profession.

"'This law will do one thing, if nothing else,' said Dr. John P. Turner, who presided as toastmaster, in his opening remarks, 'and that is it will give the worthy practitioners their chance, and will relieve the public of frauds and quacks, thus uplifting the profession.'

"Among the other prominent guests present were Dr. Harvey W. Wiley, Chief of the Bureau of Chemistry, Department of Agriculture;

Dr. William C. Woodward, health officer of the District; Dr. A. D. Melvin, Chief of the Bureau of Animal Industry, Department of Agriculture, and Dr. Charles W. Stiles.

"In response to an introduction as 'the greatest friend of the veterinarians,' Secretary Wilson replied that he is interested as much in the cause and advancement of this profession as are the members of the association themselves, and whatever he had done in the interest of the profession toward securing legislation had been done with a selfish motive. He had for a long time appreciated the fact, he said, that his department is in sore need of the most skilled and best educated veterinarians that can be obtained, and this was one of the ways of getting them.

"Mr. Wilson said he regretted the fact that the War Department has not done more for the profession by bettering that branch of the Army. 'I am informed,' he said, 'that many of the veterinarians of the Army are an inferior lot. This should be remedied by giving inducements to legitimate veterinarians to join. They should be commissioned and paid the same as other officers of the Army, as is done in the foreign countries.'

"Representative Hull, who is chairman of the House Committee on Military Affairs, prompted by Secretary Wilson's uncomplimentary reference to the veterinarians of the Army, took up the cudgel in defense of the latter, and stated that the Army requires applicants for such places to be graduates from some veterinary school or else a legitimate practitioner with several years of experience, and as a result the force is able and efficient, and for its size compares favorably with that of any of the foreign nations. He admitted, however, that the veterinarians in the service should be commissioned, and ventured the opinion that it would not be difficult for the members of this association to secure the enactment of a law authorizing it at the next session of Congress.

"Others who spoke were Dr. Wiley, Dr. Woodward, Dr. Stiles, Dr. C. B. Robinson, District veterinarian; Dr. Melvin and Dr. Hulbert Young, President of the association.

"The members of the association present were: Drs. Blume, Buckingham, Turner, Collins, Young, Robinson, Rome, Melvin, Stiles, Farrington, Hungerford, Pearson, Washburn, E. S. Woimer, M. Wolmer, Frey, Mitchell, Weeks, Yetton, Shelby, Stafford, Wootten, Summers, Linberg, Keifer, Hickman, Heidie and Turner."

In taking up the defense of the Army veterinary service, Representative Hull, Chairman of the House Committee on Military Affairs, spoke warmly in favor of the Army men, stating that, with the exception of two or three old non-graduates, who had rendered long and faithful service, the Army veterinarians were a most excellent and deserving class of officers and plainly stated in the most frank manner that the Army men should take courage, that better days were in store for them, inasmuch as Congress intended to make them commissioned officers and would, most likely, form a veterinary corps, with a head to it.

Representative Hull further stated that such a corps, on account of its small size, could not expect very high rank at present, but that sufficient rank and promotion would be given to encourage the best men to enter and remain in the service and that their chief would be given rank commensurate with his command.

This statement by Representative Hull was received with loud and long applause.

In fact, the object of the banquet, the recent enactment of an excellent law regulating the practice of veterinary medicine in the District of Columbia, seemed to be entirely forgotten by many of the leading speakers, including Secretary Wilson and Captain Hull, as most of the remarks were on the subject of army veterinary legislation, showing that there certainly will come some reward to our gallant *confrères* of the Army, who have so long and faithfully fought for proper recognition by Congress.

Too much stress cannot be put on Secretary Wilson's strictures on Army veterinarians since practically his entire speech was devoted to stating how interested he was in giving the veterinarians the same recognition in the Army as they had obtained in the Department of Agriculture.

The B. A. I. veterinarians present learned of the high and lofty respect and admiration Secretary Wilson had for "his boys," as he affectionately referred to them.

Your committee will always be glad to hear from Army veterinarians, who can ably assist us with much good advice.

The bill to increase the efficiency of the Army veterinary service and a report on the same is attached hereto.

Very respectfully,

JOHN P. TURNER, V. M. D.,

*Chairman Committee on Army Legislation, American Veterinary Medical Association,
916-918 O St., N. W., Washington, D. C.*

IN the course of a descriptive article of the Dominion Department of Agriculture, in a recent number of the *Farmer's Advocate*, of Winnipeg, Manitoba, the Health of Animals Bureau is most highly commended for its efficiency and accomplishments. An excellent portrait of Veterinary Director-General J. G. Rutherford is included, and the veterinarian in general is placed in an enviable light. Veterinarian A. G. Hopkins, editor-in-chief of the *Advocate*, has done a great deal toward advancing the interests of his profession through the medium of his excellent publication.

THE EFFECT OF A REMEDY AND A STOCK FOOD ON A DAIRY PRODUCT.

By DR. E. O. HESS, Elyria, Ohio.

On the evening of the 2d of July, 1906, complaint was made to the Sanitary Police, the officer of our local Board of Health, of the milk delivered by a certain milk dealer of our city. Upon the advice of this officer, milk delivered upon that evening and the two subsequent deliveries were brought to his office for investigation and chemical test, to detect any preservatives that might have been added on account of the extreme heat prevailing at that time. A meeting of the Board of Health was called to determine what to do. It was decided at this meeting that the services of a graduate of the science of agriculture, as taught by Ohio State University, be enlisted in testing the samples under suspicion. A test was made by him for formaldehyde or other deleterious adulterants. He reported to the Board the finding of a large quantity of formaldehyde by both the salicylic and sulphuric acid tests. Relying upon his report of the test, the Board ordered the prosecution of the dealer. Accordingly a warrant was issued for his arrest, charging him with adulteration of milk with formaldehyde. The arrest was made. Witnesses were subpoenaed for both the prosecution and the defense. The defendant pleaded not guilty. The prosecuting witness was called and testified that her attention was first drawn to the milk while serving the evening lunch, by an odor and taste, as she said, of iodoform. Another witness also testified that she had noticed the same smell but not the taste, and that she called up the first witness by telephone and asked her if she had noticed anything wrong with the milk. The first witness replied that she had, both in smell and taste, and that she had notified the Sanitary Police. The testimony of the witness who made the test, and upon whom the Board relied most for the conviction of the defendant, was that he had made the test of the milk delivered to him by the officer. The milk procured on the evening of July 3d showed very decided formaldehyde adulteration. The milk procured on the morning of July 3d under test gave negative results. He also tested all the samples for phenic acid, but found no trace of it. From this it was adduced by the Board

* Presented to the meeting of the Ohio State V. M. Association, January, 1907.

that the tests were true and that the adulterant was added only to the evening deliveries. Note this fact.

The defendant being called to the witness stand testified that there never had been to his knowledge any formaldehyde upon his place and certainly denied having adulterated the milk with anything. His wife was called and testified to the same fact, as did all the other attendants connected with his dairy who were at the trial as witnesses. During the examination of the defendant the fact was brought out that he had then and had had upon his place contagious abortion among his cows, and as a preventive and cure he had used for disinfecting purposes, phenic acid and chloride of lime; also that he had given his cows for some time "Cow Tone," a much-lauded sure preventive and tonic remedy for the cure of this and all other complaints. This remedy sold in open market is manufactured by Our Husbands Co., of Lyndon, Vt. He had, according to the testimony of the clerk of one of our local drug stores, procured on the morning of July 2d, a quantity of chloride of lime and a pint of phenic acid, as was shown by the records offered in court, kept by all druggists for recording the sale of poisons. The defendant in his testimony said that he had used on the day complaint was made all the acid and lime in disinfecting his stables. The presumption is that the odor of the combined disinfectants was absorbed by the milk and that this odor was that which first attracted the attention of the complaining witness to the milk. Had not the odor and taste been detected, the internal remedy might have been given indefinitely and the milk contained more or less formaldehyde so long as the "Cow Tone" was fed. I being subpoenaed by the defendant as expert witness, was asked this question: "Do you think it possible that the remedy given or that the disinfectants used would be absorbed by the milk during the act of milking, or that an amount sufficient in quantity to be detected by chemical test could be found in the milk from the remedy given the cows as a tonic?" After some hesitation, I replied, that milk readily absorbed odor, but having never given the subject serious thought, and having no recollection of any written authority upon the subject, I could not answer with definite accuracy about the internal remedy, but in my own opinion I thought it possible, but not at all probable. The Mayor, before whom the trial was held, after some discussion of the subject, said that it was most interesting, and as he did not wish to prosecute and ruin the character of any man not guilty of an offense, especially where

there was doubt, continued the trial to give both parties to the action a chance for more definite preparation for the trial. After the trial, the question asked of me and which I was presumed to know, set me to thinking. I knew that to medicate the dam, gave results in the offspring when so desired. This being so, why then, might not the remedy given these cows be found in the milk. If this remedy produced the results proclaimed for it, must it not contain some disinfectant or germicide in large quantities? To determine the matter satisfactorily to myself, I enlisted the services of a dairyman who was seeking knowledge and heartily coöperated with me in the test by giving me the service of two cows. We procured from each of these cows samples of the milk before beginning the test. Of these a test was made for formaldehyde with both salicylic and sulphuric acid. The result was negative. Formalin added to these samples gave positive results. One cow was fed twice daily two tablespoonfuls of "Cow Tone." The other was given the same number of times daily the same amount of formalin diluted with one quart of water. The test was carried forward for thirty-six hours and samples of the milk taken at this milking from both cows and the two subsequent milkings were tested and each and all showed decided formaldehyde admixture. The milk from the cow given "Cow Tone" contained at least 25 per cent. of the sample formaldehyde shown by the characteristic brown or cherry discoloration as given by both tests. The milk from the cow given formalin showed some less per cent. This may be accounted for from the fact that the giving of formalin in such quantities caused decided systemic effect in the cow. It set up a gastric and enteric disturbance thereby lessening the power of assimilation, and absorption. The first samples of the milk procured after the administration of the "Cow Tone" were set aside without regard to temperature or light on the ledge of a west window in a brick block, receiving the rays of the sun and the heat of the building the whole afternoon to see how long it would remain sweet. Being in glass bottles, it was carefully observed at intervals of from three to four hours daily. The milk procured from the "Cow Tone" cow showed perceptible fermentation in about seventy hours after being drawn, while that of the formalin cow appeared in the same condition after the lapse of about eighty hours. What prevented fermentation?

This test I made out of my own curiosity to know should the question again ever be raised. I did not expect to use the

results obtained in the continued trial, and therefore made no secret of them. The prosecution hearing that we had made a test of this kind and fearing that we might use it in the defense, ordered the graduate who made the test to conduct a test of two or three cows with "Cow Tone," presumably to see if the result obtained by them from the feeding of this said "Cow Tone" would produce for them the same result it had for us. He found cows at two dairies, one at each, and conducted his experiments according to the printed directions and as the defendant had testified to giving it, being only one-half the amount given by us. At the resumption of the trial he was called to the stand and testified to the facts set forth above, and that a test of the milk by the same method as before used. The result shown on this milk was the same as that produced from the milk originally complained of. There was but one thing left for the prosecution to do and that was to dismiss the defendant and exonerate him from all blame for milk adulteration, even though the milk contained large quantities of formaldehyde as proven by the tests.

This is a question of grave importance. In the prosecution of the violators of the pure food laws, the defendant may be technically guilty but wilfully innocent. All cannot be so fortunate as to escape unjust punishment by mere accident leading to the truth. There is no limit to the abuse of the pure food law that may be had by the unscrupulous in adding to the food or water of dairy cattle, formaldehyde and other dairy product preservatives, as they may claim for the health of the stock, when really it is for the preservation of their product. Is this a violation, and is a man amenable to the law for so doing? How many of the ever-increasing number of cases of nervous prostration in the human family might be traced to the administration of nux or the alkaloid strychnia to a cow for a continued period, the same milk consumed by a highly sensitive constitution setting up nervous exhaustion from over-stimulation? How many gastric disorders might be traced to the long-continued administration of large doses of irritant cathartics? We, as veterinarians, should be most guarded in advising the use of milk from cows under treatment. I think this a matter for serious future consideration and research by veterinarians, physicians, boards of health, and especially legislatures, that it may result in the restriction of or, better, the prohibition of the use and sale of the thousand and one "sure-cure" and "cure-all" remedies and stock foods sold.

THE NEW PENNSYLVANIA MEAT INSPECTION LAW.

AN ACT

To protect the public health by providing for the prevention of the preparation and sale of meat and food products which are unsound, unhealthful, unwholesome, and otherwise unfit for human food; defining what shall be regarded as meat and meat food products; authorizing the appointment and compensation of local meat inspectors; authorizing the State Livestock Sanitary Board to enforce the provisions of this act, to make rules and regulations for its enforcement, and to appoint agents to assist in its enforcement; and to provide penalties for the violation or perversion hereof.

Section 1. Be it enacted, &c., That the State Livestock Sanitary Board is hereby authorized to organize and to administer, in accordance with the provisions of this act, a service for the purpose of protecting the consumers of meats from injury by diseased, contaminated, putrid, or otherwise unsound, unhealthful, or unwholesome meats or meat food products, unfit for human consumption. The State Livestock Sanitary Board shall formulate and promulgate rules and regulations for the disposal of the carcasses of diseased animals. So far as they are applicable and are approved, the meat inspection regulations of the United States Department of Agriculture may be adopted and promulgated by the State Livestock Sanitary Board.

Section 2. No person, firm, or corporation, or any officer or agent of such person, firm or corporation, shall sell, offer for sale, expose with intent to sell, or prepare for use as human food, any meat or meat product from an animal that is in such condition that its flesh is unsound, unhealthful, unwholesome, or otherwise unfit for human food. Nor shall any unsound, unhealthful, or unwholesome meat or meat product be sold, or offered for sale, or exposed with intent to sell, for use as human food, or be manufactured or prepared for use as human food.

The terms meats and meat food products, wherever used in this act, shall include and apply to all carcasses, or parts of carcasses, of cattle, sheep, swine, and goats, and the meat or meat food products thereof.

Section 3. The owners, lessees, occupiers, or managers of all abattoirs, slaughtering, packing, butchering, meat-canning, meat manufacturing or rendering establishments, and of places or vehicles where meat is prepared, stored, sold, or transported,

shall keep such establishments, places, and vehicles in a wholesome, clean and sanitary condition.

Section 4. The Governor is hereby authorized and empowered to appoint ten persons to serve as agents to assist in the enforcement of the provisions of this act. Such agents shall have knowledge of the diseases of meat producing animals, and shall be versed in the conditions that affect the soundness, healthfulness, and wholesomeness of animal food products. An appropriate standard of fitness for appointees to these offices shall be established and maintained by the State Livestock Sanitary Board.

Section 5. Agents of the State Livestock Sanitary Board, as provided for in section four of this act, shall receive a salary of one thousand eight hundred dollars per year, and their actual necessary traveling expenses while engaged in the proper duties of their office: Provided, however, That such expenses shall not exceed one hundred dollars per month.

Section 6. It shall be the duty of agents of the State Livestock Sanitary Board, as provided in this act, to perform such services prescribed by this act as may be imposed by authority of the State Livestock Sanitary Board. Such agents are authorized, without let or hindrance, to enter upon any premises, or to enter any place, building, vehicle, or vessel, used for the storage, preparation, or transportation of animals or their products, and to examine, in any way that may be necessary, any animals, meats, or meat food product there found, for the purpose of determining whether such animals, meats, or meat food products are, or may be, made into sound, wholesome, and healthful human food. Animals, carcasses, or parts thereof, that are unsound, unhealthful, unwholesome, or otherwise unfit for human food, shall be rejected or condemned, and said animals, carcasses, or parts or products thereof, shall be treated and disposed of in such a way that they cannot be used as human food, as shall be provided by the rules of the State Livestock Sanitary Board.

Section 7. It shall be the duty of the agents of the State Livestock Sanitary Board, as provided by this act, to make examinations of slaughtering, packing, meat-canning, rendering, or similar establishments, and of places where meats or meat food products are manufactured, prepared, stored, or sold, for the purpose of ascertaining whether the said establishments or places are constructed, arranged, equipped, managed, or cared for in such a way as injuriously to affect the soundness, health-

fulness, or wholesomeness, or otherwise to render unfit for human food, the meats or meat food products therein prepared, stored, or sold. In case the establishment, or the manner in which it is arranged, equipped, managed, or cared for, shall be found to be defective in such particulars as to make it probable that, by virtue of such defect or defects, the meats or meat food products may be rendered unsound, unhealthful, unwholesome, or otherwise unfit for human food, it shall be the duty of the agent of the State Livestock Sanitary Board to notify the owner, occupier, or manager thereof as to the nature of the particular defects found, and report the same to the State Livestock Sanitary Board. The said Board shall thereupon send to the owner, occupier, or manager of the defective establishment or place a notice, in writing, in which the defect or defects shall be described; and the owner, occupier, or manager shall thereupon, within reasonable time, remedy, remove, or abolish the said defects. In the case that a defect in respect to the construction, arrangement, equipment, management, or care of a slaughtering, packing, meat-canning, rendering, or similar establishment, or of a place where meat or meat food products are manufactured, prepared, stored, or sold, deemed by the State Livestock Sanitary Board to be of such a nature as to render it probable that the meat or meat food products therein prepared, stored, or sold may, by virtue of said defect, be rendered unsound, unhealthful, or unwholesome, or otherwise unfit for human food, is not removed or abolished within reasonable time, to be designated by the State Livestock Sanitary Board, after notice from the said Board, the said establishment or place may be closed; and the owner, occupier, or manager thereof, and all other persons, are forbidden to use the said establishment or place for the preparation, storage, or sale of meats or meat food products until the said defect is remedied, removed, or abolished in a way that is approved by an authorized agent of the State Livestock Sanitary Board.

Section 8. All cities and boroughs, and all townships of the first class, are authorized and empowered to provide for the appointment of local meat-inspectors, as may be required, and to fix their compensation, which shall be paid from the funds of the city, borough, or township of the first class. The qualifications of such local meat-inspectors shall be certified by the State Livestock Sanitary Board, and they shall have the same authority and duties as are, by this act, conferred on agents of the State Livestock Sanitary Board, and shall be subject to the

same rules and regulations. Such certificates of qualification may be withdrawn or revoked at any time by the State Livestock Sanitary Board, for incompetency or neglect of duty. Local meat-inspectors shall have jurisdiction only within the limits of the city or borough, or township of the first class, by and for which they are appointed. Such local meat-inspectors shall not be governed by ordinances, rules, or regulations that are incompatible with, or that conflict with, provisions of this act, or with the rules or regulations for the guidance of its agents, approved and promulgated by the State Livestock Sanitary Board.

Section 9. The State Livestock Sanitary Board may, under such rules and regulations as it may adopt, not incompatible with the acts of Assembly or the Constitution of the Commonwealth, appoint local agents to examine the animals, carcasses, meats, and meat food products, used, prepared, or stored in local slaughtering, packing, canning, rendering, or similar establishments, and to affix an approved stamp or mark to the meats and meat food products that are found to be sound, healthful, wholesome, and fit for human food. The meats and meat food products that are found to be unsound, unhealthful, unwholesome, or otherwise unfit for human food, shall be rejected or condemned, and disposed of so that they cannot be used for human food, in the manner provided by the rules and regulations of the State Livestock Sanitary Board. Such agents shall report to, and they may be transferred or dismissed by, the State Livestock Sanitary Board. They shall be subject to the provisions of this act, and to the regulations governing and for the guidance of agents of the State Livestock Sanitary Board.

The funds for the compensation of such local agents as are provided for in this section of this act shall be furnished by the owner or manager of the establishment that such agent is appointed to oversee, and upon whose request this form of inspection is established. The funds for the payment of such local agents shall be deposited by the owner or manager of such establishment, to his own credit, in some bank or trust company to be designated by the State Livestock Sanitary Board; and shall be paid out upon the cheque of such owner or manager, payable to the order of the local agent entitled to compensation, after the bill of such local agent for services has been approved by authority of the State Livestock Sanitary Board, and the cheque, so drawn for said compensation, has been approved by authority of said Board: Provided, That such agents

as are provided for by this section of this act shall be appointed only upon request of the persons or firms who agree to meet such expense. Employes of the United States Department of Agriculture, engaged in the inspection of animals, meats, and meat food products, may be appointed agents of the State Livestock Sanitary Board, and be clothed with the powers of such agents: Provided, however, That such employes of the United States Department of Agriculture shall receive no pay or compensation for such service as agents of the State Livestock Sanitary Board.

Section 10. The State Livestock Sanitary Board shall make arrangements for coöperation between the laboratory of the Board and those engaged in the examination and inspection of meat producing animals and meats, so that unusual or difficult diseases and conditions may be scientifically studied and accurately diagnosed for the benefit of the meat inspection service.

Section 11. The State Livestock Sanitary Board may, from time to time, make such regulations for the enforcement of this act as may be necessary to carry its provisions into force and effect, and, so far as is compatible with the purposes of this act, the plans, regulations, and methods of the meat-inspection service of the United States Department of Agriculture shall constitute the standard to be adopted and followed. And the meat-inspection work of the United States Department of Agriculture shall not be repeated or duplicated by the agents of the State Livestock Sanitary Board, nor by local meat-inspectors: Provided, That the provisions of this act shall not apply to animals slaughtered by any farmer on the farm, and sold or transported to market as meat or meat food products; nor to retail butchers and retail dealers in meat or meat food products, supplying their customers. But this proviso shall not prevent agents of the State Livestock Sanitary Board or local meat-inspectors from inspecting such premises, animals, meats, or meat food products, at any time. And if any such person shall sell, or offer for sale or transportation, any meat or meat food products which are diseased, unsound, unhealthful, unwholesome, or otherwise unfit for human food, knowing that such meat food products are intended for human consumption, or shall keep his establishment, salesplace, or vehicle in unsanitary condition, after official notice being served, he shall be guilty of a misdemeanor.

Section 12. No person shall make, duplicate, reproduce,

forge, or counterfeit any stamp, certificate, mark, or emblem used or authorized to be used by the State Livestock Sanitary Board for marking or designating animals, carcasses, meats, or meat food products that have been approved or condemned; and no such stamp, certificate, mark, or emblem, used or authorized to be used by the State Livestock Sanitary Board, shall be used or employed without specific authority so to do from the State Livestock Sanitary Board.

Section 13. Any agent of the State Livestock Sanitary Board, or any local meat-inspector appointed by authority of the said Board, or any local meat-inspector appointed by any city, borough, or township of the first class, who shall pass or approve any meat or meat food product that is unsound, unhealthful, unwholesome, or otherwise unfit for human food, or who shall fail to perform his duties as prescribed by this act, or who shall accept any money, gift or other thing of value from any person, firm, or corporation, or officers, agents or employes thereof, given with intent to influence his official action, shall be deemed guilty of a misdemeanor, and shall, upon conviction thereof, be summarily discharged from office, and shall be punished by a fine of not more than five hundred dollars, or by imprisonment not exceeding one year, or by both such fine and imprisonment.

Any person, firm, or corporation, or any agent or employe of any person, firm, or corporation, who shall give, pay, or offer, directly or indirectly, to any agent, officer, or inspector authorized to perform any of the duties prescribed by this act, or by the rules and regulations of the State Livestock Sanitary Board, any money or other thing of value, with intent to influence said agent, officer, or inspector in the discharge of any duty herein provided for, shall be deemed guilty of a misdemeanor, and, upon conviction thereof, shall be punished by a fine not exceeding five hundred dollars, or by imprisonment not exceeding one year, or by both such fine and imprisonment.

If any person shall sell or offer for sale, or offer for transportation to market, any meat or meat food product which is diseased, unsound, unhealthful, unwholesome, or otherwise unfit for human food, knowing that such meat or meat food product is intended for human consumption, he shall be guilty of a misdemeanor, and, upon conviction thereof, shall be punished by a fine not exceeding five hundred dollars, or by imprisonment for a period not exceeding one year, or by both such fine and imprisonment.

Any person, firm, or corporation, or any officer or agent of such firm or corporation, who shall violate any of the provisions of this act shall be deemed guilty of a misdemeanor, and, upon conviction thereof, shall be punished by a fine not exceeding five hundred dollars, or by imprisonment not exceeding one year, or by both such fine and imprisonment.

Section 14. All fines and penalties arising from violations of any of the provisions of this act shall be paid to the State Livestock Sanitary Board, and shall be immediately paid by said Board to the State Treasurer, for the use of the Commonwealth.

GOOD ADVICE FROM A LAYMAN.—Every day brings tidings of the destruction of valuable herds of cows because of tuberculosis. Why all this destruction? Simply because the men who owned the cattle did not inform themselves thoroughly concerning the disease. Many of them have been stoutly contending that all this tuberculosis talk was a humbug, gotten up for the benefit of veterinarians. When the Hoard's Dairyman herd was started, a number of fine grade heifers and cows were purchased from neighboring farms. We proposed to start safe and stay safe. As soon as we got those cattle home we tested them and, before we got through with it, we killed seven animals. Yet we could make no impression on the farmers from whom we purchased the diseased cattle. They refused to believe a word of it. Yet was it not just as important to them to keep their herd healthy as it was to us? Why should farmers nurse and coddle this disease, keep it and hide it and refuse to know the truth, flattering themselves in a weak way that their "cows are all right." It is not an expensive matter to test a herd. If the disease is there, shouldn't the farmer know it as soon as possible? If it presents a clean bill of health, shouldn't he be vigilant to keep it so? It is a simple matter; start clean, and then keep clean. Test regularly every year. Never take in an animal that has not been tested. Use disinfectants, such as whitewash and zenoleum, carbolic acid freely. Put the King system of ventilation in the stable. Spend a little money to be safe rather than lose a lot of it in slaughtered cattle. These are all common sense precautions; just plain common sense. Some people ask us if we think the country will ever be cleared of tuberculosis. Probably not. But it is no great thing for any farmer to keep his farm clear of it and that will save him a good deal and the country a little.—(*Hoard's Dairyman*, May 31, 1907.)

CORRESPONDENCE.

INFORMATION SOUGHT ON SPASM OF THE DIAPHRAGM.

PICTON, ONTARIO, CANADA, May 30, 1907.

Editors American Veterinary Review:

DEAR SIRs:—Can you or any of your correspondents give me any light on the following case?

A young horse with a good deal of speed is troubled with spasm of the diaphragm very slightly. Will sometimes show it a little after a first or second heat and then not any more when worked more and faster, and sometimes just slightly after work when taken to the barn for a few minutes. Is in good health otherwise and does not seem a bit distressed at the time and the spasms always pass away in a few minutes or half an hour. It has been this way for over a year. Yours truly,

R. H. McKenna, V. S.

COLLEGE COMMENCEMENTS.

UNIVERSITY OF PENNSYLVANIA, VETERINARY DEPARTMENT.

At the graduating exercises of this school in June, the following gentlemen received the degree of "Doctor of Veterinary Medicine": Jose T. de Acosta, Howard H. Counselman, Howard H. Custis, Thomas Easen, George M. Garrett, Guy M. Graybill, William A. Haines, Oliver T. Hendren, Frederick S. Hope, Frank E. Lentz, Vance R. Lidstone, Ellis R. McClure, Francis P. McCushing, Warren B. Morgan, Frank R. Olding, William C. Prouse, Charles C. Schloemer, Harry W. Schoening, George A. Schwartz, Albert N. Smith, Arthur N. Smith, Arthur Spitz, Foster A. Wagner, William T. Webb, Joseph A. Wilkinson, Waverly A. Windle, Frank A. Wright.

Dean Leonard Pearson received at the same time the honorary degree of "Doctor of Medicine, *honoris causa*."

A NEW LAW in Illinois gives horse-shoers a lien on the horses and mules which they shoe until the bill is paid.

A JERSEY BULL was recently sold for \$11,500 and an Aberdeen Angus cow for \$2010.

SOCIETY MEETINGS.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

The forty-fourth annual meeting of the A. V. M. A. will take place in Kansas City, Mo., Tuesday, Wednesday, Thursday and Friday, Sept. 10, 11, 12, and 13, and arrangements are well advanced in the literary, clinical and local program of arrangements and entertainment. While none are in a finished state, Secretary Lyman has kindly furnished the following list of essayists and their subjects, and, with the object of giving our readers some idea of the character and scope of the themes to be presented, we herewith append the list, reserving until the August number the full details. In that number we hope to present the official program, together with photo-engravings of the officers and some of the scenes about Kansas City which will be in one way or another associated with the meeting.

"My Experience in and with the United States Bureau of Animal Industry"—Dr. Richard Ebbitt, Grand Island, Neb.

"A Subject Pertaining to Meat Inspection"—Dr. John R. Mohler, Washington, D. C.

"Sentiment as a Factor in Meat Inspection"—Dr. S. Stewart, Kansas City, Mo.

"Tumors"—Dr. A. T. Kinsley, Kansas City, Mo.

"The Problem of Pure Milk for Cities"—Dr. Roscoe R. Bell, Brooklyn, N. Y.

"Milk as Affected by Handling and Exposure"—Dr. M. H. Reynolds, St. Anthony Park, Minn.

"Municipal Milk Inspection in the South"—Drs. C. A. Cary and Ward Giltner, Auburn, Ala.

"Veterinary Educational Reforms"—Dr. A. Liautard, Paris, France.

"Observations on Veterinary Education and Practice in Europe"—Dr. Pierre A. Fish, Ithaca, N. Y.

"The Place of Veterinary Medicine in State Education"—Dr. D. Arthur Hughes, Chicago, Ill.

"The A. V. M. A. as an Educator"—Dr. E. M. Ranck, Natchez, Miss.

"The Veterinarian and the National Guard"—Dr. T. Earle Budd, Orange, N. J.

"Intestinal Obstructions of the Horse"—Dr. A. H. Baker, Chicago, Ill.

"Anthrax Vaccines"—Dr. R. R. Dinwiddie, Fayetteville, Ark.

"Reminiscences of Bovine Tuberculosis in Massachusetts"—Dr. J. F. Winchester, Lawrence, Mass.

"The Effects of the Tuberculin Test upon Lactation"—Dr. S. H. Gilliland and E. L. Comman, Philadelphia, Pa.

"The Agglutinating and Precipitating Powers of Glandered and Non-Glandered Blood Serum in Diagnosis"—Dr. Walter J. Taylor, Ithaca, N. Y.

"Stable Ventilation from a Clinical Standpoint"—Dr. G. A. Johnson, Sioux City, Iowa.

"Infectious Ulcerations of the Lips and Legs of Sheep"—Dr. M. E. Knowles, Helena, Mont.

"Notes on the Surgical Relief of Roaring"—Dr. W. L. Williams, Ithaca, N. Y.

"Practical and Applied Surgery"—Dr. C. C. Lyford, Minneapolis, Minn.

(Title to be announced later)—Dr. J. A. Conture, Quebec, Canada.

"Rabies as Expressed in the Connecticut Epidemic"—Dr. G. W. Loveland, Torrington, Conn.

Certainly, there is sufficient of variety and value in the above enumeration of topics for discussion to attract the attendance of veterinarians in every field of professional work.

A letter from Dr. S. Stewart, Chairman of the Local Committee of Arrangements, under date of June 18, contains the following in reference to the meeting:

"The Local Committee are trying to complete arrangements to make this meeting a valuable one to the Association and I hope a pleasant one for those who come here. We are planning a trip to one of the large packing houses that the members may see for themselves the most excellent sanitary conditions under which meat products are prepared for human consumption, and while at the packing house there will be an exhibition of pathological specimens obtained from food producing animals. The display will show what the inspector finds and how the public is protected through the performance of his duties. The Armour people promised us in addition a dainty luncheon to be served in the commodious office building just before leaving the plant. I really believe that the veterinarians of the country and the lady friends who accompany them will very greatly enjoy the privilege of the proposed trip to and through the packing house.

"We have been considering whether or not the ladies would like to hear a paper and its discussion on 'Contamination of Milk and Best Methods to Prevent Same.' This subject is to be a part of the evening program. What do you think as to the probability of the ladies being sufficiently interested to attend?"

Our reply to Dr. Stewart's closing inquiry was emphatically affirmative.

CALIFORNIA STATE VETERINARY MEDICAL ASSOCIATION.

The March meeting, was held in Fresno.

The program called for the clinic to begin at 9.00 A. M., and a large number of members and visitors were assembled at the hospital of Drs. Longley and Betzold before the hour named. As each arrived at the office he was presented with a gelatine capsule filled with Fresno raisins suspended by a yellow ribbon. This each pinned to his coat lapel.

There was a large amount of clinical material and the operations and demonstrations were successful and interesting. Drs. Longley, Fox, Danielson and Griffith took part in the operations. After the program was completed and all had examined the equipment of this modern hospital, adjournment was taken for lunch.

At 1.30 P. M., the members and their friends boarded an electric car for a ride through the city and vicinity. Here the beauties and the prosperity of the city of Fresno and the grandeur and fertility of the surrounding country was unfolded to each visitor. Each had an exclamation of surprise and wonder as a new view came in sight. Rightly should the citizens of that valley city be proud and boastful of their homes.

Returning to the Sequoia Hotel at 3.00 P. M., the regular business session was called to order. After the disposal of the order of business the reading and discussion of papers was taken up.

Dr. H. A. Spencer, of San Jose, was the first member called upon, and he read a poem dealing with evolutions of men in general and veterinarians in particular. It was a flow of wit and wisdom. The Doctor never "rises to speak" but that there are ready listeners.

The next paper was by Dr. Longley, "Treatment of Laminitis." This paper was well prepared and the discussion that

followed brought forth many original thoughts and the exchange of ideas of city and country practitioners were very helpful.

Dr. Danielson, of Madera, presented a most interesting paper on "Mammitis." Every one listened attentively to the reading of this essay, for it is a subject that veterinarians are eagerly searching for information on. The discussion that followed the reading of Dr. Danielson's paper was most spirited. Owing to the great importance of this subject, Dr. Archibald, of Oakland, made a motion, which was seconded and carried, that a committee of five be appointed to discuss the subject of mammitis at the next meeting. President Browning named Drs. Keane, Fox, Danielson, Longley, and H. A. Spencer, as the committee.

After the adoption of resolutions tendering the gratitude of the California State Veterinary Medical Association to State Senator J. A. McKee and Hon. Fred. E. Pierce, Assemblyman from the 72d District, for their efforts in securing the passage of a law regulating the practice of veterinary medicine and surgery in this state, adjournment was taken, to meet at Oakland next meeting.

Following the adjournment, the San Joaquin Valley veterinarians tendered a banquet at the Sequoia Café to the Association and their friends. A most excellent *ménu* was served and jolly goodfellowship reigned. After cigars had been passed, Dr. Archibald, acting as toastmaster, called attention to "food for thought," and cited a few recollections, beginning his career as a veterinarian in the city of Fresno, some fifteen years ago. After briefly reviewing the changes that had taken place in the veterinary world and particularly in our own state, he called upon Dr. H. A. Spencer, a member of the Old Guard—"Veterinarians of Twenty Years Ago." The Doctor responded with his usual grace and wisdom, telling of the stages of gradation the Association has passed through since its first organization. He paid honor to those who gave the best efforts of their years to make a place for the veterinarian in the social and scientific world. Calling the names of the Old Guard (he being the only one present) he asked the members to rise and drink a toast to the absent ones.

After telling of the work that had been done by the Legislative Committee in securing the enactment of a law to regulate practice in this state, the toastmaster called upon Dr. Fox, of Sacramento,—"Veterinary Legislation." Dr. Fox, having served

upon every Legislative Committee appointed by the Association and having long been a resident of the Capital City, was well qualified to tell of the ups and downs of the Legislative Committees. He recited the experience in trying to get a bill before the Legislature and how each one has raised the standard till now we have a law that compares favorably with any other state's. The Doctor told of the untiring efforts of Drs. Archibald and Keane in guiding the bill through the committees and houses, how Drs. Spencer and Creely had assisted, and the work others had done to help the committee.

The toastmaster next called upon Prof. Emil Weschcke, M. D.,—"Reciprocity in Medicine." Dr. Weschcke began with a brief review of medicine and the common interests of the human physician and the veterinarian. He was most earnest in his praise of the veterinarian for his part in sanitary science and said that the physician no longer hesitated to turn to the veterinarian for knowledge of infectious diseases common to man and lower animals. The Doctor is a graceful and most entertaining speaker, and it was surely pleasing to veterinarians to hear their profession spoken of in such terms by a member of the medical profession.

Dr. Wm. M. MacKellar, B. A. I., was called upon to tell of the work being done by his force in "Tick Eradication in California." The Doctor briefly told of the Bureau work and asked for the coöperation of all veterinarians.

The last speaker of the evening was Dr. Longley, of Fresno. The toastmaster asked him to explain the ways of the San Joaquin Valley veterinarians. Dr. Longley told of the pleasure it had given the San Joaquin Valley veterinarians at being able to entertain the Association. He assured all present that it was not a bit "put-on," but the way they always did things at Fresno. With all standing, a toast was given to the San Joaquin Valley veterinarians.

Thus ended the most successful and interesting meeting ever held by the California State Veterinary Medical Association.

CHARLES EASTMAN, *Secretary*.

MONTANA VETERINARY MEDICAL ASSOCIATION.

Acting in accordance with request of Dr. E. D. Nash, of Helena, Montana, a few of the Montana veterinarians met at the office of Dr. M. E. Knowles in the Capitol Building for the purpose of organizing the Montana Veterinary Medical Association.

Meeting called to order by Dr. M. E. Knowles at 11 A. M. Present:—Drs. A. D. Knowles, Livingston; J. A. Madden, Bozeman; N. B. Smith, Billings; Wm. V. Lusk, Fort Assiniboine; E. D. Nash, M. E. Knowles and E. T. Davison, Helena.

On motion of Dr. Davison, seconded by Dr. Madden, Dr. M. E. Knowles was chosen as temporary Chairman. On motion of Dr. Smith, seconded by Dr. Nash, Dr. Davison was chosen as temporary Secretary.

The Chairman then appointed as committee on nominations, Drs. A. D. Knowles, Madden and Smith. A recess of five minutes was then taken to await the report of Committee on Nominations.

At the expiration of the allotted period the Committee returned and reported for officers of permanent organization, Dr. M. E. Knowles, President; Dr. N. B. Smith, Vice-President; Dr. E. T. Davison, Secretary-Treasurer. On motion of Dr. Nash, seconded by Dr. A. D. Knowles, the recommendations of the committee were approved and officers declared elected.

On motion the Chairman was requested to appoint a committee to formulate a Constitution and By-Laws, and in accordance with request appointed Drs. Lusk, Nash and A. D. Knowles. On Dr. Lusk's request that he be excused from acting on the committee on account of being a temporary resident, Dr. Smith was appointed in his stead. An adjournment until 12 M. was then taken to await the report of the Committee on Constitution and By-Laws.

At the expiration of the allotted time the committee reported that they would have to have more time in order to draft such a Constitution and By-Laws as would be appropriate for the organization. An adjournment was then taken until 2.45 P. M.

Reconvened at 2.45 P. M., and called to order by President Knowles. On motion Dr. Smith, Chairman of Committee on Constitution and By-Laws, was requested to read the same as drafted by the committee. Dr. Smith reported that the Committee had deemed it expedient to adopt for our organization the Constitution and By-Laws of the American Veterinary Medical Association, with such modifications as would be necessary by reason of ours being a State organization. (Then followed the reading of the Constitution and By-Laws.)

Constitution and By-Laws as reported by the Committee, unanimously approved.

On motion it was voted that non-resident veterinarians, who

by reason of their duties, official or otherwise, may have temporary residence in the State, may become members of the Association upon application in the regular manner and the payment of customary fees.

The matter of appointing permanent committees was then taken up and President Knowles appointed committees as follows:

Legislative Committee—Drs. A. D. Knowles, Nash, Madden, Davison, C. F. Leslie, Z. Carl Boyd and W. C. Orr.

On motion it was voted that Dr. M. E. Knowles also be made a member of the Committee on Legislation.

Diseases—Drs. F. C. Eells, A. H. Cheney and J. A. Madden.

Finance—Drs. W. J. Butler, C. F. Leslie and E. D. Nash.

Local Arrangements—Drs. Nash, Davison and Eells.

Executive Committee (in addition to elective officers)—Drs. A. D. Knowles, Madden and Nash.

Necrology—Drs. W. J. Butler and L. A. Nutting.

Resolutions—Drs. Madden, A. D. Knowles and Cheney.

On motion it was voted that the Secretary-Treasurer be directed to purchase suitable minute-book, arrange for the printing of certificates, Constitution and By-Laws, purchase a seal for the Association and such other material or appliances as may be necessary for the transaction of the business of the Association.

Vice-President Smith was then called upon to preside over the meeting and the last order of business, consisting of the reading of papers, was then taken up.

Dr. A. D. Knowles read a very interesting and instructive paper on

"THE STREPTOCOCCI INFECTIONS AND MY EXPERIENCE WITH ANTISTREPTOCOCCIC SERUM.

"The *Streptococcus pyogenes* is rather a small coccus, arranged in chains, each coccus being divided into two hemispheres by a line of division running at right angles to the axis of the chains. The chains may be made up of many cocci and be quite long. It is aerobic and there may be free cocci. Stains by Gram's Method.

"The character of the growth in bouillon is subject to considerable variation and certain doubtful varieties (?) of the streptococcus are distinguished mainly by the bouillon culture.

"The result of the inoculation of animals is not constant,

great variation in the virulence of different cultures being observed.

"The streptococcus occurs frequently in the spreading phlegmonous inflammations as well as in suppurative processes generally, and is one of the most common causes of septicæmia. It is almost always present in inflammatory conditions of the mucous membrane of the pharynx, and is often encountered in broncho-pneumonia. In erysipelas it is almost invariably the infecting organism and it is the most frequent cause of puerperal septicæmia; although the streptococcus is distinctly a pus-producing bacteria, yet the inflammations of the soft parts of the extremities which are produced by it are generally characterized more by necrosis and serous or hæmorrhagic exudation and infiltration than by the breaking down of tissue and pus production.

"The streptococcic infection which I have had occasion to treat, more than any other in this state, is that caused by the *Streptococcus equi*, which causes equine strangles.

"The predisposing causes to this infection are: Anything which will suddenly deplete the system of the animal and thereby reduce the power of resistance to the infection, also wounds of the skin or mucous membrane and general debility from any other cause.

"The infection is disseminated by the lymphatic system and the disease is characterized by a variety of symptoms which correspond to the tissues, organ or system which becomes the seat of the disease as a complication of the general infection.

"The period of incubation is three to five days. There is a mild form of this disease in which the lymphatics of the head and throat are slightly inflamed and the mucous membrane of the nasal passages, mouth, pharynx and larynx take on a mild form of catarrh.

"In the irregular or malignant form there is a marked constitutional disturbance, characterized by high temperature, congested visible mucous surfaces, rapid prostration, often showing symptoms also of intoxication and partial or complete paraplegia.

"The complications with which I have met are: Laryngopharyngitis, œdema of the glottis, tracheitis, bronchitis, pneumonia, stomatitis, gastro-intestinal catarrh, hepatitis, pleuritis, pericarditis, endocarditis, diabetes, peritonitis, pyæmia, neurasthenia and cutitis.

"The conditions which I have noticed in this state which particularly favor the infection just described, is the custom of riding and driving horses long distances in a short space of time, thereby depleting their vital forces, which is too often followed by exposure to cold wind and other inclement weather, or if sheltered at all are placed into a crowded, illy-ventilated, unsanitary stable, where they are confined for from one to several days.

"Other diseases in which the streptococcus plays an important part are purpura hæmorrhagica, equine influenza, gangrenous pododermatitis, streptococcus of contagious pneumonia of equines, infective gastro-intestinal catarrh of the newly-born animal and the streptococcus infection of the limbs of cattle and sheep.

"The streptococcus yields readily to the application of disinfectants, but after it once gains entrance into the system it is difficult to control; its progress in the production of tissue changes is rapid and destructive.

"Within the past three months I have used about five thousand c.c. of antistreptococcic serum, but have had only a few patients in which I could make a daily clinical record; most of the animals treated were so far away that only a single call was made.

"*Case 1.*—Feb. 17, 1907, roan mare, used in livery, was well on the previous day. Temperature $106\frac{2}{3}$, pulse 60, respiration 40, head and ears drooped, staggered when led out of stall. Treatment.—30 c.c. antistreptococcic serum, 'Pasteur,' hypodermically, also digitalis, strychnine and belladonna in solution, to be given by the mouth every two hours. Feb. 18, temperature 103, pulse 60, respiration 20. Feb. 20, temperature, pulse and respiration normal.

"*Case 2.*—April 3, gray gelding, 1400 lbs., used on dray, 'had slight cough and nasal discharge for a week, worked up to three days before, when he seemed very sick.' Temperature 105, pulse 72, wiry, respiration 30, labored; right lung in stage of red hepatization. Injected 20 c.c. antistreptococcic serum and gave the usual pneumonia treatment. April 4, temperature 104, respiration 30, pulse 60. April 5, temperature 104, pulse 60, respiration 25. April 6, temperature 102, pulse 45, respiration 20. Did not see animal again until put to work.

"*Case 3.*—April 10, chestnut gelding used for driving; for ten days past was not well, was worse the past three days.

Temperature 106, pulse 80, wiry, respiration 45, labored; left lung in stage of red hepatization, extreme dullness and severely prostrated. Injected 30 c.c. antistreptococcic serum and gave the usual pneumonia treatment. April 11, temperature 104, pulse 60, respiration 30. April 12, temperature 104, pulse 60, respiration 30. April 13, temperature 103, pulse 50, respiration 25. April 14, temperature 102, pulse 45, respiration 20. April 15, temperature 101, pulse 40, respiration 20. Case discharged.

"I will say that previous to the use of the antistreptococcic serum, several horses suffering from some form of the streptococcic infection, which came under my care, had died. While I do not consider the serum treatment a specific, I am convinced that its proper use will greatly lessen the mortality of animals suffering from streptococcic infections.

"I have not had an opportunity to test the use of the antistreptococcic serum as an immunizing agent, but it is my opinion that its use should be recommended where horses are to be unduly exposed, as in shipping, or where we are called to treat deeply punctured wounds, or even in castration of valuable animals."

Discussion led by Dr. Madden, who stated that he had also used the serum with very satisfactory results. He was also of the opinion that its administration modified attacks of strangles.

Dr. E. T. Davison then read a paper on "Dourine and a Few Conditions Simulating it."* Discussion led by Dr. M. E. Knowles.

On motion it was voted that the thanks of the Association be extended to Drs. Knowles and Davison for their papers, and that the Secretary be instructed to offer them to AMERICAN VETERINARY REVIEW for publication.

Adjournment was then taken until October 2d, 1907.

E. T. DAVISON, *Secretary*.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK CITY.

The June meeting had been advertised to be devoted to the special purpose of considering the law governing the practice of veterinary medicine and the educational conditions in New

* Will be published in an early number of the REVIEW.

York State. The meeting was called to order at the usual place at 8.30 P. M., June 5, and there were present from distant points, by invitation of the Association, the following eminent members of the profession:—Dr. W. Horace Hoskins, Philadelphia, Pa.; Dr. Wm. Herbert Lowe, Paterson, N. J.; Dr. Richard P. Lyman, Hartford, Conn.; Dr. W. L. Williams, President New York State Veterinary Medical Society, Ithaca, N. Y.; Dr. W. G. Hollingworth, Utica, N. Y.; Dr. Thomas E. Smith, Jersey City, N. J.; Dr. Henry Vander Roest, Newark, N. J., and a large number of veterinarians in and around the Metropolis, besides a good representation of the membership.

President Bell called the meeting to order, and, dispensing with the usual routine business, stated the object of the meeting to be a discussion of the present status of our practice law and the condition of veterinary education in New York State. He felt that the Association was greatly honored by the response to its invitation to the gentlemen from neighboring states, for every one who had received an invitation to meet with us and discuss our problems, had responded in person by laying aside business matters and coming to assist us. He stated that the situation in the Empire State was very grave; that the cities and towns were rapidly filling up with men who could not register as practitioners under the law, and that we were powerless to prevent them from practicing, as the law was defective in that no practical punishment is provided for such men. While the penalty for a non graduate is that of a person committing a misdemeanor (\$250 fine and imprisonment for six months), the graduates of schools whose diplomas are not recognized by the Regents are only guilty of a non-classified offense; the law states merely that "he shall forfeit \$50 for each day of such illegal practice." No provision is made for the collection of the fine, and no punishment in case of its non-payment. New evidence would have to be secured for every day that such fine is imposed, and even if this were done, the law can easily be defeated by the offender owning no property in his own name. Knowledge of these conditions was, he said, widespread, and graduates from two-year schools and other schools which do not maintain a four-year high school entrance requirement were taking up practice in the state, and were laughing at the profession in the state which has the honor of having enacted the first law recognizing the veterinary profession. Not only was the practice law the cause of derision and disregard, but the condition of the veterinary schools of the

state in relation to veterinary education in general was ridiculous. By the high entrance requirement, students well equipped to make veterinarians of a high order were forced to seek their education in other states, and they could return and practice here, or, if they cared to conform to the law, they could secure the required counts after graduation and present themselves to the Examining Board for a license. As a result of this condition the attendance at the schools is inconsiderable, and, if the law is not amended, any school depending upon the fees of students must close its doors, while even the school which is supported by state appropriation will have so few students, even though tuition is free, that the cost to the state of each graduate will be so high as to enlist the attention of the law makers. According to the address of the President of the State Society, delivered at Buffalo last September, the schools are not turning out one-third as many practitioners as are dying or retiring from business, and the proposition to drive out of the state non-registered men is met by the question as to whether we can supply their places by qualified practitioners. And, further, if those unlicensed men be forced out and their places left vacant, is there not danger for the entire fabric of the law? President Bell stated that he did not yield the first place to any man in appreciation of the advantages of higher education for the veterinarian; but he submitted that the cause of higher education was being retarded rather than advanced by the policy adopted in this state, and he pointed out that the facts that the schools were comparatively empty and the state full of unlicensed men were evidences of the failure of the laws maintaining in New York State. He thought the situation desperate, and it demanded the most earnest consideration of every veterinarian having the welfare of the profession at heart. He knew that the subject was better handled in some of our neighboring states, and for this reason some of their strong men had been invited to meet with us to consider the subject and give us the benefit of their experience and judgment.

Dr. W. Horace Hoskins, Secretary of the Pennsylvania State Board of Veterinary Medical Examiners, told of the conditions in his state; he recounted the wonderful achievements of the profession in the Keystone State, before the last legislature, which met the demands of the profession in every bill which it offered. He told of the sacrifices made by the leading veterinarians in behalf of the profession, and said that only

with such a spirit could anything be accomplished in New York. He lashed the profession in New York unmercifully for its laxity, and believed that nothing of real value could be accomplished unless a better spirit prevailed. He thought the schools were deficient in teaching special subjects of paramount importance to the modern veterinarian, notably milk and meat inspection, and the system of the Regents in having the members of the Board of Examiners pass upon the qualifications of candidates for license without ever seeing the individual was deplorable. He felt that personal contact with a candidate gave a better estimate of his qualifications for practice than mere theoretical answers to intricate questions. He delivered a sound scolding to those practitioners who, while pointing with pride to their own regularity, yet employed assistants who were themselves not registered, and in some instances were not graduates of any school.

Dr. Hoskins was followed by Dr. Lowe, who told of the working of the New Jersey law, but he was unable or unwilling to state what should be done in New York.

Dr. W. L. Williams was certain something was wrong with both the law and the schools, but he claimed that the remedy lies, not in a reduction of the requirements for entrance into the schools, but a higher efficiency of the schools; that the state, having undertaken to regulate them, should render greater financial aid, and he believed that if the quality of the teaching was of a higher order the number of students would increase sufficiently to meet the demands for veterinarians. He was convinced that attempts to prosecute under the law would be unsuccessful, and believed that it would be unwise to drive men out of the state when their places could not be filled.

Dr. Richard P. Lyman, of Connecticut, was of the opinion that the requirements for entrance to the schools were too high, and that greater progress would be made if they were brought to a conservative basis—higher, however, than those of every other college in the country; yet not at the present prohibitive standard. The profession is young, and it is progressing very rapidly, and he believed greater progress could be made if there was greater uniformity among the schools throughout the union.

Drs. Lowe and Hoskins, each a member of the Examining Board of his respective state, told of their prosecutions of illegal practitioners, and in almost every instance the offender had

been forced to flee and had crossed the border into the Empire State, where he is free from molestation.

Drs. Hollingworth, Vander Roest, Smith, Ackerman, Grange, Crawford, Ellis, Clayton, Dickson, and many others spoke upon the subject, all believing that the situation called for action by the State Society at its approaching meeting, and at the conclusion of the speaking, Dr. Ackerman offered the following resolutions, which were unanimously adopted :

"*Resolved*, That it is the sense of this meeting,

"*1st.* That we have been lax in the prosecuting of our illegal practitioners.

"*2nd.* That the entrance requirements to our Veterinary Colleges are too high, and our schools' courses are inefficient along certain lines of Sanitary Medicine.

"*3rd.* That we recommend to our State Society that our laws be amended to make all illegal practitioners suffer the penalty of a misdemeanor.

"*4th.* That our Board of Veterinary Examiners be given some power in the registering and prosecution of illegal practitioners."

Dr. D. J. Dixon, of Hoboken, N. J., was unanimously elected to membership.

Copies of the new Constitution and By-Laws adopted at the March meeting were distributed by Secretary Blair, and they reflect great credit upon his tact and taste.

Dr. Charles E. Clayton exhibited a number of specimens of fractured bones of horses which he had recently recovered at post-mortems in his practice. He also showed the two navicular bones from the front feet of a horse which had been treated by a number of veterinarians, the majority directing their efforts upon the shoulders.

The specimens, however, showed extensive lesions of the os navicularis.

Dr. Cox sent around among the members the dead body of a kitten which he had removed from its mother the previous day, and which lived for several hours. It presented two mouths and four eyes, with an abbreviated caudal appendage having an enlargement at its termination. In sucking it was unconcerned as to which mouth enveloped the maternal teat.

After a hearty vote of thanks to the visiting veterinarians, the Association adjourned to meet the first Wednesday in October.

(R. R. B.)

VETERINARY ASSOCIATION OF THE DISTRICT OF COLUMBIA.

A meeting of this Association was held on the evening of April 24, 1907, at the office of Dr. D. E. Buckingham, 2116 14th Street, N. W. There was the usual large attendance. The feature of the evening was the reading of a paper by Dr. E. C. Schroeder, Superintendent of the Experiment Station, Bureau of Animal Industry, Bethesda, Maryland, on "Tuberculosis: The Mode of Infection and the Cow,"* which was of great interest and value, and elicited a lengthy discussion. Numerous questions were asked the essayist and were answered in a manner which indicated his wide learning and thorough knowledge of the subject. A rising vote of thanks was tendered Dr. Schroeder for his paper.

F. M. ASHBAUGH, D. V. S., *Secretary*.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

The regular meeting was held at Donaldson's Hall, Broad and Filbert streets, on Tuesday evening, June 11th. Dr. B. M. Underhill, the President, occupied the chair, and the following members responded to roll-call:—Drs. J. W. Adams, H. Black (of Hammonton, N. J.), B. Kirby (of Woodbury, N. J.), W. H. Hoskins, W. L. Rhoads, Charles Lintz, C. J. Marshall, E. W. Powell, J. W. Vansant. Visitors:—Dr. Carlisle, Dr. Kline, of South Carolina, and several students of the University of Pennsylvania.

The minutes of the previous meeting were read and approved, and there being no other business the President called upon Dr. J. W. Adams for his paper upon "Castration of the Cryptorchid." Dr. Adams simply delivered a lecture upon the subject in such a graphic manner, that all present seemed to know all about cryptorchid castration when he finished.

Dr. C. J. Marshall spoke upon the "Etiology of Parturient Paresis." He cited the views of many veterinarians upon the subject. Some claim that it is due to a micrococcus which gains entrance from abrasions upon the vagina or uterus at the time of parturition, but experience disproves this theory. The cerebral anæmia theory seems the most plausible, and Dr. Meyers, a German veterinarian, cited cases to substantiate it.

* Published in "Original Articles" department of this number of REVIEW.

Dr. Kline, of South Carolina, spoke of the condition in that state, showing that cotton and not livestock was the main industry.

The meeting adjourned at 11 P. M.

A. W. ORMISTON, *Secretary*

YORK CO. (PA.) VETERINARY MEDICAL ASSOCIATION.

This Association held its regular meeting at York, Pa., June 4, and there was a good attendance.

Two papers were read and well discussed—one by Dr. E. S. Bausticker on "Parturient Paresis" and one by Dr. W. L. Herbert on "The Mallein Test for Glanders in Horses." There was also a general discussion on tuberculosis.

One new member was elected. The next meeting will be held at the same place on September 3.

E. S. BAUSTICKER, *Secretary*.

ILLINOIS STATE VETERINARY MEDICAL ASSOCIATION.

The Illinois Veterinary Medical Association will hold its semi-annual meeting in Springfield, July 10th. Our first summer meeting was held in Bloomington last July and proved to be a decided success. Springfield being an attractive city, and with a good program promised, we anticipate a large gathering and a very profitable meeting.

Come and meet with us. N. I. STRINGER, *Secretary*.

TWIN TROTTERS are in training at the track at Lexington, Ky. They are "Star Prodigal" and "Starless Prodigal." But for a star in the forehead of the former, they are indistinguishable.

"A COMPARATIVE STUDY OF TUBERCLE BACILLI FROM VARIOUS SOURCES," by John R. Mohler, V. M. D., Chief of Pathological Division, and Henry J. Washburn, D. V. S., Assistant Chief, has just been issued by the Bureau of Animal Industry as Bulletin No. 96. It is an exhaustive compilation upon the subject, illustrated by a number of colored plates, and students of the subject should secure it by all means. Dr. Mohler is a tireless worker, and his conclusions are sound and definite.

NEWS AND ITEMS.

DR. J. F. MENNE, of Newport, Kentucky, died suddenly on March 20.

DR. E. W. HANSON, McNabb, Ill., was married on March 21 to Miss Grace Russell, of Chicago.

DR. A. A. MUNN, of Kearney, Neb., was recently married to a daughter of the Mayor of that city.

DR. W. O. MCGUIGAN (O. V. C. '07) has passed the Ohio Board of Examiners and opened an office in Salem.

DR. W. E. WIGHT, City Veterinarian of Pittsburgh, Pa., has recovered from a serious illness and resumed practice.

DR. S. J. WALKLEY (McKillip '07), of Georgia, has joined the B. A. I. forces at the National Stock Yards, Chicago.

DR. B. T. WOODWARD, B. A. I., has been transferred from Chicago to the Pathological Division, Washington, D. C.

THE VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY will hold its semi-annual meeting at Asbury Park, July 11 and 12. A good literary and clinical program has been provided.

DR. R. M. BEACHY, of Meyersdale, Pa., has completed a commodious new veterinary hospital and enjoys a lucrative practice.

DR. J. J. DRASKY, of Crete, Neb., is a member of the School Board of his city, having recently been elected by the largest popular vote of any of the members.

DR. R. F. EAGLE, Assistant Chief of the U. S. Inspection Service at Kansas City, made a two weeks visit to friends and relatives in Chicago during the first part of June.

N. C. SPALDING (K. C. V. C. '07) has located at Provo, Utah, and has been appointed a member of the Board of Veterinary Examiners recently created by the new law.

"I AM highly pleased with the REVIEW, and am sure that it deserves every support from the profession."—(C. H. H. Sweetapple, V. S., Fort Saskatchewan, Alta., Canada.)

DR. LOUIS A. KLEIN, South Carolina Agricultural Experiment Station, is the author of an important bulletin (No. 130) on "Methods of Eradicating Cattle Ticks," published in May.

MICHIGAN has passed a law known as the "Simpson Bill," which will henceforth permit only graduates of three-year veterinary colleges to register and practice veterinary medicine and surgery in that State.

DR. HARRY O. GRATZ, of Pittsburgh, Pa.; Dr. Walter E.

Tapp, of Morgantown, W. Va., and Dr. J. P. Willey, of Marietta, Ohio, have accepted appointments in the Quartermaster's Department, U. S. Army, and are now on special duty in Cuba.

H. G. ROGERS, a non-graduate practitioner, of Washington, Pa., was convicted on a charge of violating the laws regulating the prescribing, dispensing and sale of cocaine, and was sentenced to undergo three months' confinement in the county jail.

DR. ROBERT A. MCAUSLIN, of Brooklyn, N. Y., was married on the 27th ult., to Miss Charlotte Henry, also of Brooklyn. Dr. McAuslin is a graduate of the New York-American Veterinary College, class of 1903, and is practicing in partnership with Dr. L. McLean.

DR. A. C. KNAPP, of Bridgeport, Conn., was doubly blessed this Spring. On April 24, he was united in marriage to Miss Josephine L. Silleman, of that city, and on May 1 he received the appointment, after competitive examination, of Milk Inspector of Bridgeport.

MORE like a jack rabbit or a kangaroo is a calf recently born in a Western State. Its front legs are quite a little shorter than its hind ones, and it has no tail at all. Instead of moving and frisking about like its playmates, this odd looking creature covers the ground by leaps.

DR. COOPER CURTICE, long in the employ of the Bureau of Animal Industry, was in Kansas City the middle of June making an official inspection of the Texas fever tick quarantine division. The Doctor is alert to every phase of the fever tick problem and is gathering much information for the benefit of the Bureau.

DR. H. D. GILL, of New York, on Saturday, June 15, in the cup races of the Speedway, drove his black pacer "Coast Marie" for the Morosini Cup, valued at \$1000, half mile heats against Andrew Crawford's trotter "Invader," defeating the latter in the remarkable time of 1:00, which is the fastest half-mile ever paced on the road.

DANIEL W. MCDORMAN, a non-graduate veterinary surgeon of 23rd Street, near Fourth Avenue, New York City, died at the New York Hospital on June 15th, from acute glanders, contracted from a horse. Two autopsies were held—one by the hospital authorities and one by the coroner's physician—and the diagnosis was confirmed by each.

THE EMPLOYÉS OF THE B. A. I. stationed at St. Joseph, Mo., indulged in a royal banquet at the Hotel Metropole, Satur-

day evening, June 15th. Dr. R. L. Baker, Kansas City, was the guest of honor. The excellent *menu* and post prandial speeches served so aptly in enhancing good fellowship that many resolved to make such a banquet an annual affair of the force at St. Joe.

THE GILES REMEDY CO., of Chicago, is extensively advertising a statement that "35 horses in a New York barn, diagnosed as glandered by one vet., and condemned to death," "were not glandered; it was nasal gleet. Saved by Giles." It is stated that, "for obvious reasons," the name of the owner of this remarkable herd is withheld. The "obvious reason" is probably the untruth of the story.

THE HEALTH DEPARTMENT OF KANSAS CITY is making a start toward securing a sanitary condition of the city's meat markets and milk depots, and efforts are being made looking toward the control of the milk supply of this city. Dr. Lloyd Champlain, the only veterinarian in this department, has been able to bring about a very great improvement in the physical conditions of retail shops, and meat cutters take kindly to the requirements of the Health Department.

"YOU need not send any note stating that you 'hope your efforts will warrant my continuance as a subscriber,' for as long as I am in practice I want the REVIEW, and even if I were to cease to actively practice it would be a great pleasure to have it to read. *I would not be without it if it cost \$3 a month*, and the last year has been the best yet, and I want to congratulate you on publishing the best veterinary periodical I have ever seen."—(*H. S. Richards, V. S., Pittsburg, Pa.*)

WHY THE NEW ANÆSTHETIC IS CALLED STOVAINÉ.—The curious name of the anæsthetic "stovaine" is due to its discoverer, M. Fourneau. M. Fourneau was anxious to perpetuate his own name in connection with it, but as the anæsthetic was of the nature of cocaine and no compound resembling that could be contrived out of "Fourneau" he translated the name into its English equivalent of "stove" and added the necessary termination.—(*Daily Consular and Trade Reports.*)

DEATH OF MAJOR JOHN J. McCANN.—Those veterinarians who attended the meeting of the American Veterinary Medical Association at Nashville, Tenn., in 1897 will learn with much regret of the death of the genial Major McCann, who did so much for the pleasure and comfort of those in attendance. He was especially kind and considerate for the ladies, and his happy disposition, wit and congeniality will ever be remembered by

those who were so fortunate as to visit the Southland just ten years ago.

At the matinee trotting meeting of the Goshen (N. Y.) Driving Club, Veterinarian J. F. DeVine was a prominent figure. Mounted upon "a spirited charger" he officiated as marshal of the course. Later the many-sided veterinarian changed his attire for the silk jacket, and the summary of "Class A" shows that, seated behind "Dexter," a horse regularly used in the livery business of N. H. Wilcox, he defeated four trotters in the fast time of 1:15 $\frac{3}{4}$ -1:16 for half a mile.

DR. J. M. WRIGHT, the new State Veterinarian of Illinois, begins his tenure of office by completely reorganizing his staff of assistants. He has called for the resignations of every Assistant State Veterinarian in the state without exception, with the purpose of appointing and reappointing only veterinarians specially qualified for the positions, which, under the new laws, are highly important. He has also appointed an Advisory Board consisting of Drs. A. H. Baker, Jos. Hughes, L. A. Merillat and John Scott (Peoria), before which all matters of importance will be discussed.

FRESH BEEF is a rare luxury in Alaska, and a firm of dealers at Seattle, Wash., recently shod seventy-two head of steers and shipped them by steamer to Valdez, Alaska, from whence they will be driven over the trail to Fairbanks. The shoes, by the aid of which it is hoped the steers can be driven over the pass, are sectional to fit the cloven hoofs. It is believed that with this protection the animals will withstand the long drive over the trail, about 380 miles, requiring about twenty-five days to accomplish it. The promoters of the scheme expect to make a handsome profit, as it is estimated that each animal will realize about \$1000 when dressed ready for sale in the gold-mining town.

COAL OIL AS A MEDICINE.—A. W. Baker, V. S., Brasher Falls, N. Y., writes: "In answer to Dr. C. C. Mills, Decatur, Ill., in the June REVIEW, page 364, on "A Case of Mystery," if the Doctor ever has another such case, let him give a one-ounce capsule containing Barbadoes aloes, 3 vij; calomel, 3 j; ginger, 3 ij. If there is no action in 36 hours, repeat the dose, omitting the calomel. After the physic has stopped, give twice a day one pint of coal oil, one pint of molasses, and one pint of lime water. Mix these well and wet the grain with them. If the patient will not eat, drench him. Follow this treatment up for a week or ten days. If the teeth are sharp, float them. In

the meantime he will find that the saliva will stop and the patient will begin to eat hay and grain. The trouble is due to the stomach. We had one in our hospital that did not eat for two weeks, but began to improve immediately after the above treatment."

A PROPHET HONORED IN HIS OWN COUNTRY.—In the wonderful achievements of the veterinary profession of Pennsylvania, during the past few years (and notably during the past year) the name of Leonard Pearson stands out as the leader of a splendid band of devoted, self-sacrificing and successful veterinarians who know no such word as "fail." Under his generalship, with such lieutenants as W. Horace Hoskins, J. C. McNeil, Clarence J. Marshall, and W. H. Ridge, with a rank and file which includes almost the whole profession of the state, they have accomplished almost a veterinary revolution in the Keystone State. At the banquet of the Alumni Association of the University of Pennsyl-



vania, on the evening of June 19, the splendid leader was toasted and praised for his great service to this profession, while at the commencement exercises in the morning he was the recipient from the University of the degree of "Doctor of Medicine, *honoris causa*." If there was a Pearson in every state the profession would soon assume that position in the galaxy of the sciences which those who love it have dreamed of.

THE IDENTITY OF A DOG.—The following story from the *Chicago Daily News* is from its correspondent at Tokio, Japan, under date of April 4: "For more than four years a lawsuit has been carried on by two doctors over the possession of a dog. They have spent more than \$500 in lawyers' and court fees, though the animal in dispute is not worth \$15. Last year the disputants, both of whom are physicians, saw the folly of further continuing the litigation, and were about to give the dog to a third party. This attempt at compromise, however, has failed, and litigation has been resumed. Mr. Onishi, the defendant, now argues that there are still living the mother,

brother and sister dogs of the one originally belonging to him and the identity of his dog with the one in dispute can be established by bringing these doggies together. The court has accepted the proposal and hence the conference of dogs is about to take place in the law court. The court has also asked Dr. Iijima, zoölogist, Dr. Tokishige and Dr. Ishikawa, to witness the meeting of the dogs and give a decision. The learned doctors have accepted the invitation, so that it will be a conference not only of dogs but of doctors."

THE MISSING LINK IN THE EVOLUTION OF THE HORSE.—Determined efforts to find the missing link in the evolution of the horse are being made by an expedition from the American Museum of Natural History, which has just arrived in South Dakota. The filling out of that gap would be an achievement in paleontology which would be regarded as a triumph for any scientific institution, and there is much activity among museums and universities in the search for a perfect fossil skeleton of the animal required to complete the chain. There have been found on this continent a few small bones and teeth of this primitive horse which has been called the parahippus, but no specimens sufficiently perfect to establish the type have yet been unearthed. Its place in the scale of evolution is between the mesohippus and the protohippus. Through the efforts of Professor Henry Fairfield Osborn and other well known scientists have been traced the various steps. If a parahippus be found there will still be a few types missing, but the discovery of this ancestor will be sufficient to demonstrate an interesting and important theory of evolution. Mr. Albert Thomson is in charge of the field party, and three assistants have been assigned to aid him. The country to be explored is south-east of the Black Hills and has many outcroppings of the lower miocene period. The explorers will devote at least four months to their task. The museum authorities wish to complete the collection of evidence as rapidly as possible. Such pioneers in that branch of study as Professors Cope, Marsh and Osborn have attracted the notice of the scientific world by their achievements in tracing the horse from the primitive type the eohippus, a fox-like animal eleven inches in height, to the present thoroughbred. The search is of especial interest in the United States, as everything indicates that the horse originated in North America, and that all of his kind in the Old World are descendants of the steeds which went there over the land where now rolls Behring Strait.—(*New York Herald*, June 16.)

VETERINARY MEDICAL ASSOCIATION MEETINGS.

Secretaries are requested to see that their organizations are properly included in the following list.

Name of Organization.	Date of Next Meeting.	Place of Meeting	Name and Address Secretary.
American V. M. Ass'n.	Sept. 10-13, '07.	Kan. City, Mo.	R. P. Lyman, Hartford, Ct.
Vet. Med. Ass'n of N. J.	July, 1907.	Asbury Park.	W. H. Lowe, Paterson.
Connecticut V. M. Ass'n.	Aug. 6, 1907.	New Britain.	B. K. Dow, Willimantic.
New York S. V. M. Soc'y.	Sept., 1907.	New York City	G. T. Stone, Middletown.
Schuylkill Valley V. M. A. ....	.....	.....	W. G. Huyett, Wernersville.
Passaic Co. V. M. Ass'n.	Monthly.	Paterson, N. J.	H. K. Berry, Paterson, N. J.
Texas V. M. Ass'n.	Call Exec. Com.	.....	E. L. Lewis, Waxahachie.
Massachusetts Vet. Ass'n.	Monthly.	Boston.	F. J. Babbitt, Lynn, Mass.
Maine Vet. Med. Ass'n. ....	.....	.....	R. E. Freeman, Dexter.
Central Canada V. Ass'n.	July, 1907.	Ottawa.	A. E. James, Ottawa.
Michigan State V. M. Ass'n.	State Fair Week	Detroit.	Judson Black, Richmond.
Alumni Ass'n N. Y.-A. V. C.	April, 1908.	141 W. 54th St	T. F. Krey, N. Y. City.
Illinois State V. M. Ass'n.	July, 1907.	Springfield.	N. I. Stringer, Paxton.
Wisconsin Soc. Vet. Grad. ....	.....	.....	S. Beattie, Madison.
Illinois V. M. and Surg. A. ....	.....	Decatur.	C. M. Walton, Rantoul.
Vet. Ass'n of Manitoba.	Not Stated.	Winnipeg.	F. Torrance, Winnipeg.
North Carolina V. M. Ass'n. ....	.....	.....	C. J. Fleming, Winston-Salem
Ontario Vet. Ass'n.	Summer 1907.	Ottawa.	C. H. Sweetapple, Toronto.
V. M. Ass'n New York City.	1st Wed. ea. mo.	141 W. 54th St	W. Reid Blair, N. Y. City.
Ohio State V. M. Ass'n. ....	.....	Columbus.	W. H. Gribble, Wash'n C. H.
Western Penn. V. M. Ass'n.	1st Wed. ea. mo.	Pittsburgh.	F. Weitzell, Allegheny.
Missouri Vet. Med. Ass'n. ....	.....	.....	F. F. Brown, Kansas City.
Genesee Valley V. M. Ass'n.	July, 1907.	Rochester.	J. H. Taylor, Henrietta, N. Y.
Iowa Veterinary Ass'n. ....	.....	.....	H. C. Simpson, Denison, Ia.
Minnesota State V. M. Ass'n	July 10-11.	Mankato.	C. A. Mack, Stillwater.
Pennsylvania State V. M. A. ....	.....	.....	C. J. Marshall, Philadelphia
Keystone V. M. Ass'n.	Monthly.	Philadelphia.	A. W. Ormiston, 102 Her-
.....	.....	.....	man St., Germantown, Pa.
Colorado State V. M. Ass'n.	1st Mon. in June	Denver.	M. J. Woodliffe, Denver.
Missouri Valley V. Ass'n. ....	.....	.....	B. F. Kaupp, Kansas City.
Rhode Island V. M. Ass'n.	June and Dec.	Providence.	T. E. Robinson, Westerly, R. I.
North Dakota V. M. Ass'n. ....	.....	.....	C. H. Martin, Valley City.
California State V. M. Ass'n.	Mch. Je. Sep, De	San Francisco	Chas. Eastman, San Luis
Southern Auxiliary of Calif	.....	.....	[Obispo.
nia State V. M. Ass'n.	Jan. Apl. Jy, Oct.	Los Angeles.	J. A. Edmons, Los Angeles.
South Dakota V. M. A. ....	.....	.....	E. L. Moore, Brookings.
Nebraska V. M. Ass'n. ....	.....	.....	Hans Jensen, Weeping Water
Kansas State V. M. Ass'n.	Jan. 1908.	Manhattan.	Hugh S. Maxwell, Salina.
Ass'n Médecine Vétérinaire	1st & 3d Thur.	Lect R'm La-	J. P. A. Houde, Montreal.
Francaise "Laval,"	of each month.	val Un'y Mon.	.....
Province of Quebec V. M. A. ....	.....	Mon. & Que.	Gustave Boyer, Rigand, P. Q.
Kentucky V. M. Ass'n.	Nov 19, 1907.	Not decided.	D. A. Piatt, Lexington.
Washington State Col. V. M. A.	Monthly.	Pullman, Wa.	Wm. D. Mason, Pullman.
Indiana Veterinary Association.	An'l Jan., '08	Indianapolis.	E. M. Bronson, Indianapolis.
Louisiana State V. M. Ass'n. ....	.....	.....	E. P. Flower, Baton Rouge.
Twin City V. M. Ass'n.	2d Thu. ea. mo.	St P.-Minneap	S. H. Ward, St. Paul, Minn.
Hamilton Co. (Ohio) V. A. ....	.....	.....	Louis P. Cook, Cincinnati.
Mississippi State V. M. Ass'n. ....	.....	.....	J. C. Robert, Agricultural Col.
Georgia State V. M. A.	July 4, 1907.	Atlanta.	L. C. Willoughby, Experiment
Soc. Vet. Alumni Univ. Penn.	June, 1908.	Philadelphia.	B. T. Woodward, Chicago.
Virginia State V. M. Ass'n. ....	.....	.....	S. C. Neff, Staunton.
Oklahoma V. M. Ass'n. ....	.....	.....	W. H. Martin, El Reno.
Veterinary Practitioners' Club.	Monthly.	.....	A. F. Mount, Jersey City.
Vet. Ass'n Dist. of Columbia.	Last W. ea. mo.	2116 14th St,	F. M. Ashbaugh, Wash., D. C.
B. A. I. Vet. In. A., Chicago.	2d Fri. ea. mo.	Chicago.	R. J. Stafford U. S. Yards.
Arkansas Veterinary Society. ....	.....	.....	B. H. Merchant, Little Rock
York Co. (Pa.) V. M. S.	Sept 3.	York, Pa.	E. S. Bausticker, York.
Philippine V. M. A.	R. H. McMullen, Manila.

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AMERICAN VETERINARY REVIEW

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And several others.

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AMERICAN VETERINARY REVIEW.

AUGUST, 1907.

EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, FRANCE, June 15, 1907.

HOW VETERINARIANS ARE APPOINTED IN THE FRENCH ARMY.—The excellent article of Dr. C. H. Jewell that I have read in the "Proceedings of the American Veterinary Medical Association" for 1906, has suggested to me that perhaps some facts relating to army veterinarians in France might prove of some interest to American army veterinarians, and, after inquiries and with documents obtained from official sources, I am pleased to write the present article.

The enlisting of veterinarians for the French army differs very much from what it is in the United States. There is in France a cavalry military school, situated in a charming little town of the department of "Maine et Loire," named Saumur, which, among the objects for which it was instituted, has that of completing the technical instruction of candidates to the appointment of army veterinarian, of teaching them equitation and of initiating them into regimentary duties. These candidates are recruited from veterinarians in private practice, from those that are serving their military services as privates and from graduating students of veterinary schools. The places are obtained by competition. The candidate has to submit himself to two examinations, besides presenting vouchers as to citizenship, age, social condition, physical qualities. He must hold a diploma from one of the three schools in France or be a candidate for it. He must sign a contract of six years' military service from the time he leaves Saumur. The examinations are written, oral and practical. The first is on a question of medical or surgical pathology, hygiene or

physiology. It is a general question. The second is on any subjects pertaining to veterinary medicine. The third takes place on a healthy or sick horse. Failure in the first examination excludes the candidate from the others.

Nominations of admission are delivered by the Secretary of War. While in stage at the school, the young army veterinarian is under the direction of the veterinary major of the institution.

The program of instruction is regulated by the Secretary of War. At the end of their period of studies, examinations are to be passed and the successful candidates are appointed in various regiments of artillery or of cavalry. The unsuccessful may be allowed another stay and another trial, providing the failure has been due to sickness while at the school.

The length of attendance to the school is of two semesters, after which a last examination is demanded before a board composed of a general or colonel, commanding the school and acting as chairman, one principal veterinarian of first class and three veterinarians of second class, acting as members.

The examinations are divided into four seatings: one written consisting of making a report to a military authority, upon a practical subject of practice, surgery or hygiene; one oral, upon any of the parts of the curriculum of the schools; one practical, upon the external form of the horse, surgery, hygiene, horse shoeing or meat inspection, and the fourth on equitation.

The curriculum is composed of subjects exclusively military and practical, classical courses taught in the veterinary schools being strictly avoided. It covers the following principal points:

Legislation and Administration.—History of military veterinary medicine, laws, duties in garrison, in the rank, in campaign, redaction of reports, etc.

Military Pathology and Epizootics.—Diseases prevailing among army horses, contagion, military veterinary surgery.

Inspection of Meats and of Preserves.—Visits to slaughter-houses, inspection of all food as applicable to the army.

External Forms of the Horse.—Zootechny, military equine hygiene, stables, bivouacs, harnessing, breaking, horse shoeing

with history, foot, various modes of shoeing, clinics, pharmacology, ophthalmology, microbiology.

Equitation.—Topography.

* * *

Once appointed assistant or aid veterinarian, in coming out of Saumur, the road is open. He begins with the rank and pay of second lieutenant. That of colonel is the top of the ladder!

The following is the number of army veterinarians in the French Army:

The stage aid veterinarians of Saumur vary in number. There are 226 assistant or second veterinarians with rank of sub lieutenants or of lieutenants. There are 184 first veterinarians with rank of captains. Forty-two major veterinarians ranking as majors. Fourteen principal veterinarians of second class with rank of lieutenant-colonel and one principal veterinarian of first class with rank of colonel. Mr. J. Jacoulet stands to-day as veterinary principal of the army and it is to him that I owe the principal information referred to above.

* * *

ADRENALIN PROLONGS LOCAL ANÆSTHESIA.—The great results that are obtained with injections of cocaine as a local anæsthetic have been known for a long time, and to-day many practitioners are resorting to it either to abolish temporarily the sensibility in a field for operation or to localize a pain in the territory of action of a given nerve.

There have been, however, objections made against its use—namely, its toxicity is quite dangerous, and again, while it is quick in its action, it being absorbed rapidly, its elimination is also quite rapid and as a consequence its anæsthetic effects are of short duration.

Fortunately, careful researches have demonstrated that if a small quantity of adrenalin is added to a solution of cocaine, its absorption will be moderated a great deal and local anæsthesia can be produced which will last much longer—some say several hours.

It is on this very interesting subject that Prof. Dupuis and his adjunct, Vanden Eeckhout, have attracted attention in an article, published in the *Annals of Bruxelles*, headed: "Practical Method of Obtaining a Lasting Local Anæsthesia—Association of Adrenalin with Local Anæsthetics."

Cocaine is essentially a local anæsthetic. Injected on the tract of a nerve, it abolishes the sensitive conductivity of the nervous branches, and the animal behaves as if all painful excitability of the peripheric extremities remained unnoticed. Injected in the connective tissue, the solution is rapidly absorbed, but its effects last comparatively only a short time.

Adrenalin is a general and local vaso-constrictor. Injected in small quantity in the circulatory current, it produces a vaso-constriction in the entire vascular system. Applied on mucous membranes, such as the conjunctiva, or pituitary, it produces a marked ischemia which allows operations to be performed without hæmorrhage.

The vaso-constriction that adrenalin promotes has for results not only to interfere with its being itself absorbed, but it also prevents the too rapid absorption of the cocaine through the whole organism and as a consequence the local anæsthetic effects last longer.

* * *

This has been proven by experiments on animals, which received toxic doses of cocaine alone or of cocaine mixed with adrenalin. The former animals died a few minutes after taking the toxic dose, while the others recovered or died only after 12 or 18 hours.

These experiments had been made on guinea-pigs, they were conclusive, but Prof. Dupuis with his adjunct repeated them in a comparative manner, so as to control their correctness. Horses were selected and the plantar nerves were the seat where the test was applied. With the solution of pure cocaine, they obtained an anæsthesia that began about 15 minutes after the injection and lasted between 20 and 40 minutes. The anæsthesia produced with a mixture of cocaine and adrenalin began also after 15 min-

utes, but seemed to be stronger than the one with cocaine alone and lasted *complete* between two and a half and three hours.

These facts were observed on the subjects of experiment. Two hours and a half after the injection, nervous and very irritable animals appeared to ignore entirely the deep introduction of sharp needles in their muscles, in those where the branches of the anæsthetized nerve were distributed, while the same manipulations made in other regions made them react very strongly.

Therefore, by this method a local anæsthesia can be obtained lasting sufficiently long to allow one to perform very painful operations which may require a long time for their execution, as, for instance, all kinds of operations on the foot.

The following solution is recommended by Prof. Dupuis : Muriate of cocaine, 25 to 30 centigrams; muriate of adrenalin at 1/1000, five drops; distilled water, 10 cubic centimeters.

For the anæsthesia of the foot, half of this solution is injected along each plantar nerve. The practitioner may prepare the mixture himself when it is needed or have it on hand, as the solution will keep, if placed in the dark. All cloudy or tinted solutions must be thrown away.

Stovaine mixed with adrenalin has given the same results as those obtained with cocaine. Same effects and local anæsthesia, which may last from two and a half to three hours.

It is probable that the same addition of adrenalin to the other succedaneums of cocaine, such as alypine and novocaine, would give similar results and find similar applications.

* * *

RABIES NOT ALWAYS CHARACTERISTIC.—Rabies is a proteiform disease, which is characterized by extremely varying symptoms, and yet it has been possible to classify it in such a manner that two forms of the disease are admitted, one raving and the other paralytic. But between these two forms there are numerous cases which are not so well characterized and in which peculiar manifestations are observed, giving rise to atypical cases, against which the daily practitioner must be on guard. In the *Journal of*

Zootechnie, Prof. Nicholas has related four of those cases, which deserve special notice.

In one, the animal showed opisthotonos, carrying his head to the right. He had such a tendency to go forward that if left alone he would go ahead until stopped by some obstacle in his way. He then would remain in that position and if changed he would immediately resume his walking, pushing forwards. He died in two days and in the position he always took—namely, standing against the walls of his cage. Rabies was confirmed by post-mortem and inoculation.

In another case, the dog was constantly moving in a circle, remaining indifferent to everything around him, to the voice of his master or to any food offered to him. He barked no more. Death in two days and diagnosis confirmed by post-mortem and inoculation.

In a third animal somewhat similar symptoms were observed. Anorexia, continuous moving in a circle to the left. Slight dropping of the lower jaw. Similar death and similar confirmation.

The last case was that of a goat which had been inoculated in the eye. During twenty-four hours and before the apparition of the pathognomonic symptom of rabies, the animal presented a continuous movement of propulsion and retraction of the tongue, in such a way that for two or three minutes the tongue remained hanging and then suddenly was retracted into the mouth. Same condition as in the others.

But it is not only in its manifestations that rabies varies, but the duration of its evolution is also subject to change. It is said to run its course rapidly. For the raving form the duration is generally admitted as being of two to ten days, and a period of four to five days marks the limit of its duration. With the paralytic form the disease progresses more rapidly in a general way, and death occurs ordinarily by asphyxia in two or four days. Two cases are recorded by Nicholas which differ much from these averages.

A slut is much changed in her manner. Quiet she was and

now she is snappish; she refuses her food; her voice is changed. A month before she has bitten another dog. Rabies is the diagnosis. She became raving and lived thirteen days before death occurred.

In another animal the duration of the disease was of eleven days.

It seems that after these, the general belief that one dog, suspected of rabies and that had not died in the admitted length of time, say from two to five days, was free from the disease and could be without danger returned to his owner, demands to be corrected, as after all it may be wrong and an animal that would have been declared healthy, might a few days later be taken again or be still a dangerous animal, liable to give his disease to other living beings.

Nicholas records also the case of a dog that died suddenly. At the autopsy intraperitoneal hæmorrhage was found as the cause of death. The day before dying, the dog had been dull, snappish and had bitten a cat and a child in the house. Rabies was suspected and confirmed by the lesions of the brain and inoculations to rabbits.

The conclusions of all this are: First, that rabies may assume various forms during life, and be manifested by various forms of nervous symptoms; second that the duration of the disease is not always that which is classically admitted, and third that the lesions are not always characteristic and may be concealed.

All these comport with them great circumspection in making a diagnosis and a prognosis.

* * *

INOCULATIONS AGAINST RABIES.—Physicians and veterinarians, the world over, are acquainted with the recent experiments made in relation to the treatment of rabies, and in its proper place, I have told the readers of the REVIEW how radium was recommended by Tizzoni and Bongiovanni as an agent which would not only destroy the rabid virus, but arrest the progress of the disease in rabbits, and again how others demonstrated that radium was powerless.

Doctor Remlinger, of Constantinople, who is always investigating rabies, has published in the *Revista Pasteur* an article on the treatment of the disease in *all domestic animals*.

Wondering at the fact that when persons are bitten by an animal suspected or afflicted with rabies they are treated for this affection, why, on the contrary, are the cases so rare when animals are vaccinated against the disease. Herbivora get immunity by the intrajugular injection of rabid virus, *why* not vaccinate all animals?

Remlinger has tried a new method: A mixture of anti-rabid serum and fixed virus. The serum is obtained by injections of increasing doses of virus in the jugular of a sheep. This mixture is entirely harmless for rabbit and for man, and at the dose of 60 c.c. it gives immunity to a sheep, even three days after an intra-ocular inoculation. This new method of inoculation, made under the skin, is easy and not dangerous—a double advantage over the intrajugular inoculation.

Horses, cattle, goats as well as sheep could be vaccinated and treated in the same manner, and a revision of the sanitary legislation on rabies be the result.

The immunity granted is such that animals resist cranian inoculation. In relation to dogs, the law does not allow them to be treated. Why should they not?

* * *

A Mr. Marie, of Paris, says Dr. Remlinger, has applied to dogs the vaccination with the mixture of fixed virus and anti-rabid serum. One injection of 10 to 12 c.c. of mixture in the proportion of $\frac{1}{3}$ of virus to 2 of serum, is sufficient to preserve the dog for one year. The rapidity of the effects is wonderful. It is such that three days after the injection of the mixture, the dog can receive with impunity an intra-ocular inoculation of fixed virus.

The manner to prepare the serum is very simple. Sheep is the subject for it. One began by injecting in the jugular a small dose of virus; after three or four inoculations of gradually increasing doses immunization is completed by subcutaneous injec-

tions of one brain of a rabbit dead with rabies in an emulsion made with 400 c.c. of water. When the animal has received from 30 to 40 brains, its serum will neutralize an equal volume of fixed virus. The serum had better be tested before being used. To keep the immunizing properties, inject the sheep every day with one brain of a rabid rabbit.

At Constantinople, when a dog bitten by a rabid animal is brought to him, Dr. Remlinger treats him as follows: "He takes 30 centigrams of rabid virus from the brain of a rabbit, dead by inoculation of fixed virus; he triturates them aseptically with 30 grams of water, filtrates the liquid, adds 30 c.c. of serum from immunized sheep and inoculates the bitten animal under the skin."

Should this become admitted in general practice, immunization against rabies for all animals could be realized!

* * *

THE PART OF NATURE IN RECOVERIES.—Under the heading of "On Spontaneous Recoveries," Mr. E. Wallis Hoare, F. R. C. V. S., has published in the *Veterinary Record*, an article which ought to be read by all young men who enter the profession.

I have not the honor of knowing Mr. Hoare, except by his writings—many indeed are his articles that can be found in all the English veterinary journals; but I fancy him one who, after many years of practice and of close observation, is desirous to guard the recent graduate, principally, against the tendency that many have, when coming out of school, of knowing it all. And yet, in "Spontaneous Recoveries" there is also a warning to those for whom the great "*I am*" or the ever "*I have done it alone*," is the evidence of a blind conceit, refusing to Dame Nature that which is due to her, that which she certainly did alone.

Of course, evidences of spontaneous recoveries are not of every-day occurrence; but yet they are met with in cases that have been pronounced incurable or not worth treating. As an example, Mr. H. mentions quittor. Are they not many among us who have advised the owner of a horse with a bad quittor, one of long standing, not to go to the expense of treatment, to sell

the horse or to send him to the country. Yes, he did go to the country, and came back cured and radically cured! Are they not in great numbers also, those who could mention cases of lameness which have recovered simply by rest, by being simply sent to grass? Spontaneous recoveries, indeed!

And in the medical cases, have we not also spontaneous recoveries? Perhaps more frequent than in the surgical. Mr. H. mentions spasmodic colics, that so often recover before the practitioner reaches them. A peculiarity which suggested to a professor addressing his students: "If called at night for such a case, hurry up to it, as the animal may get well before you get there; and, besides your being disturbed at night for nothing, you would lose the opportunity of a larger fee."

"A case of nasal discharge of undoubtful diagnosis recovered spontaneously to our knowledge," says Mr. H., and tetanus, and hydrophobia, and how many more—way down to the faddists who, to asepsy or antiseptic alone, attribute the results that are obtained in some surgical cases, when comparing them with similar ones in country practice, where most adverse circumstances prevail, and yet as good results are obtained. Has not Dame Nature also something to do with them, and cannot spontaneous recovery be at the bottom of all?

The conclusive remarks are quite to the point and worthy of one who no doubt realizes the real value of the application of medical knowledge: "Real professional progress can only be brought about when we recognize the natural progress of recovery and appreciate the fact that our influence over disease has limitations."

* * *

BIBLIOGRAPHIC NOTES.—The United States Department of Agriculture has issued its Twenty-second Annual Report of the Bureau of Animal Industry, for the year 1905. It is the first that is published since Dr. Melvin has occupied the position of Chief of the Bureau—Chief of the Sanitary Service of America. The volume is much smaller than those of preceding years, various statistics already published having been left aside. As it was

during the year 1905 that the resignation of Dr. Salmon took place, the book opens with the report of the Chief of the Bureau for the fiscal year ending June 30, 1905—Dr. Salmon still acting—and presents to the reader: Tuberculosis of hogs, experiments with tubercle bacilli, distribution of tuberculin, black leg, hog cholera, Texas fever, mycotic stomatitis, rabies, inspection of meats, etc. I notice that nothing is said of anthrax fever. As if it did not exist in the States! And I hear that large quantities of vaccine matter are sold by some European firms. If it is, there must be use for it and the conclusion must be that anthrax fever does also exist. Among the special works carried out by the officers of the Bureau are: Notes on the cattle tick and Texas fever, by Dr. E. C. Schroeder; another from the same and Dr. W. E. Cotton on the persistency of the Texas fever germs in the blood of Southern cattle, and then a number of others of less importance to the veterinarian, such as on the production of milk, on cheese factories, breeding of cattle, Welsh black cattle, baby beef cattle, etc. There is the usual list of registered live-stock in the United States, that of the contagious diseases of domestic animals in foreign countries, etc. The illustrations are perhaps less numerous, but still always superior to many similar publications.

* * *

Among other publications that I have received I must mention the Annual Report of the Chief State Veterinarian of North Dakota for the year ending Nov., 1906 (Dr. Vanes). "Abstracts of Work Done in the Laboratory of Veterinary Physiology and Pharmacology from the New York State Veterinary College," Dr. P. A. Fish, among which I remark "Glanders and Bovine Serum," by C. L. Roadhouse and Leigh Giltner. Circular No. 108 from the B. A. I. on Trichinosis; danger of the use of raw pork for food, by B. H. Ranson; Circular No. 106 offering for sale a large number of publications from the Bureau. The "Intelligent Management of Plantation Stables," by W. H. Dalrymple, and finally the first number of the first volume of a Russian paper, published by the Veterinary Institut of Dorpat under the title of *Zeitschrift für Wissenschaftliche und Practische*

Veterinar Medicin, traduction from the Russian type, which our friends could not possibly read nor our printers reproduce. May these few words carry to our new *confreres*, the expression of our feelings of welcome and wishes for its success.

* * *

And as I was about closing, I received a little book to which I must do justice even if the space allowed to me is more than filled. The "Directory of the Veterinary Surgeons of Pennsylvania" is before me with the list of the members of the State Board of Veterinary Medical Examiners and the names and addresses of *eight hundred and thirty-five* (835) registered veterinary practitioners. They are arranged by alphabetical order and then by counties. Of all those, 50 did not renew their licenses, 17 have died and 5 retired, leaving 763 actually practising. The little directory has been compiled by Dr. W. H. Hoskins, and that is to say how strictly correct it is. In undertaking this gathering, the Doctor assumed a great deal of work and it is a great compliment to him to have so well succeeded! It is to be hoped that similar work will be accomplished in other States, as they all will allow of a better knowledge of the real forces of our profession, and no doubt give assistance to a more intimate acquaintance between the many members in the various States and in the different parts of the country. A. L.

THE A. V. M. A. AT KANSAS CITY.

We have pleasure in presenting to our readers in this number the very attractive program arranged for the forty-fourth annual meeting of the American Veterinary Medical Association, to be held at Kansas City, Mo., September 10, 11, 12 and 13, and we submit that never has a convention of the National Body offered such promise of interest, value and support as the one which is now so near upon us. Called to assemble in the heart of the Middle West, at a point equally accessible to all sections of the country, in the midst of a vast veterinary population, consisting not only of practitioners, but of an army of Federal in-

spectors, where the association spirit is strong and sincere, it seems that the meeting of 1907 must in the very nature of things place a new record for the inspiration of future years.

The literary program given out by Secretary Lyman embodies every phase of professional work, from the scientific discussion of the agglutinating power of glandered blood serum to the recital of the symptoms of an ulcerative disease of the lips and legs of sheep, from a consideration of the duty of the State toward veterinary education to the simple tale of "John Smith and His Misfortunes," from a *résumé* of "anthrax vaccines" to practical conclusions upon applied surgery.

Not only will the mind be broadened, refreshed and ennobled by the great mass of papers and discussions by the foremost veterinarians of America, but the local committee has borne in mind the fact that this year we meet in Missouri, and they will *show us* some of the results of diseased processes. And so, in the great packing plant of the Armour Company, the Federal inspectors located at Kansas City have collected a vast array of pathological specimens in the course of their duties. The members and visitors will be the guests of this company for the morning of the third day, and those who have read of and have conceived ideas of what a great packing house is like, will have the opportunity to inspect a model one throughout all processes of preparing meats and meat products for home and foreign consumption. Furthermore, the visit will offer not only relaxation and instruction, but will be fraught with social pleasures, for it is announced that the company will tender their guests a luncheon at the noon hour, and, with the ladies in attendance, the occasion will wind up in a delightful diversion.

If the surgical and medical clinics of the A. V. M. A. have year by year increased in value through greater facilities and a higher conception of the demands of modern surgical methods, that at Kansas City may be confidently relied upon to justify the faith of those who have ever held them to have a proper place upon the program of this organization. With the excellent equipment of the Kansas City Veterinary College, the ripe experience

of those in charge of the details, the unlimited material of the Western metropolis, the presence of the most renowned surgeons of various sections of the country, there is every reason to expect that the acme of such events will be recorded when the story of the clinic of 1907 is written. America was the first country in the world to inaugurate clinics at association meetings, and it is the sincerest flattery that foreign countries are following in her footsteps, reluctantly acknowledging that they are both educational and necessary to create and hold the interest of the members of such organizations. The eyes of Europe are watching the development of our surgical clinic, and we are to show them that in this progressive land we will bring it to its highest perfection.

It is unnecessary here to recount the splendid round of social distractions which has been arranged to throw a halo around the more serious work of the convention, as it is given in detail elsewhere. It is sufficient to state that every moment of time not occupied by professional events has been anticipated by the Kansas City veterinarians, and in the most pleasant and congenial company convention week will be a red-letter one in the life of every one who loves his profession and the splendid manhood of its *personnel*.

The REVIEW offers its congratulations to the profession upon the prospects of the greatest convention of modern times.

On to Kansas City! Let none stay away who can possibly attend!

OUR APOLOGIES TO DR. PEARSON.

With a sincere desire to pay a well-deserved tribute to the Dean of the Veterinary Department of the University of Pennsylvania, on the occasion of his recent decoration by the great institution of which he is so valuable a factor, and upon the successful completion of his remarkable campaign before the legislative solons for recognition of the needs of the veterinary profession of the Keystone State, we sought to make our remarks

more impressive by attaching a portrait of the distinguished subject. The picture which was sought to be reproduced was found in one of the Philadelphia locals, and was regarded as an excellent likeness of Pearson. Our artist said that it would be necessary to "touch it up a little" to bring out the features more plainly. The results were disastrous, for the picture would do just as well for half a dozen veterinarians we could name. Some who saw it, without reading the accompanying remarks, guessed that it was Marshall, others said it was George R. White, and another, with a little stretch of the imagination, believed it was Melvin with his mustache shaved off. Pearson himself facetiously remarked that it was "a good picture, but a poor portrait." While humbly apologizing for the offence, the REVIEW feels somewhat relieved by the circumstance that it occurred after the close of his work at Harrisburg, for he could scarcely have won the battle with such a handicap.

THE "REVIEW" IN A "NEW DRESS."

The REVIEW presents itself to its many readers this month in much more worthy garb for its valuable contents. Its collaborators and correspondents have done so much to make it a great magazine that the publishers have for some time felt that its typographic appearance was not in keeping with the excellence of their contributions, and so they have arranged with one of the largest and best establishments in this country to have it printed by the linotype process, whereby new type will be made for each number. In the words of a well-known manufacturer of toilet powder, "We could not better the contents, so we improved the box." While the REVIEW is one of the oldest veterinary periodicals printed in the English language, it is determined to be also one of the youngest.

ST. LOUIS has a new veterinary hospital for its fire department, located at North Market and Twenty-second streets. It has a capacity of 50 animals, and the veterinarian, Dr. John Kelly, says the *St. Louis Times*, will reside in the building.

ORIGINAL ARTICLES.

THE EVOLUTION OF THE HORSE.

BY B. M. UNDERHILL, V. M. D., MEDIA, PENNSYLVANIA.

Presented at April Meeting of the Keystone Veterinary Medical Association of Philadelphia. Published in "Proceedings of Delaware County Institute of Science."

To read that the ancestors of our horses hundreds of thousands of years ago had three toes, were no larger than sheep and were probably striped may be entertaining, but unless such facts are brought into connection with principles that arrange them in their relation to other facts, they can only serve to conduct us through mere description to blank amazement. The popular treatment of topics of science has been objected to on this score, and much that has been so written upon the beginnings of the horse is so fragmentary and scattered that it can only bring to the unprepared mind a disordered conception of the subject. I am quite incompetent to write anything more profound, but have attempted in this brief paper to present connectedly and relatively the outlining facts which I have derived from a number of authors who have recorded the results of more recent research in the fossil fields of North America. The evolutionary line is that of Professor Marsh, while for the description of fossils I have relied principally upon the study of specimens at the American Museum of Natural History at New York.

When Sir Isaac Newton demonstrated gravitation from falling apples it did not apply to apples alone, but the law which he asserted was a universal one. And so if evolution had been demonstrated only by what we know as to the origin of the horse, this would be sufficient to establish it as universal in its application. Animal evolution proceeds through ages of geological time from the general to the special, and the horse furnishes us the best exemplification in existence of this evolutionary law. In America, where the record is most complete, he has been traced

from the Mammalian Dawn down to historic times through eight successive stages without a break of importance in the line.

It is of course not to be inferred that the distinguishing characteristics in this series were abrupt departures from prevailing forms; the horse with one functional digit between two that were useless was not a direct product of the preceding genus in which the two lateral hoofs reached the ground and contributed to support, nor did this three-hoofed horse thus descend from the one which stood upon four. Between these stages there was an intermediate series in which the tendency to discard what had become an incumbrance went hand in hand with adaptive development. If a variation is of advantage in the struggle to sustain life, nature tends to retain it and intensify it in future generations until it finally predominates over the older forms. To be sure nature also tends to propagate defects, but this retrogression cannot be long sustained amid the constantly unfolding enemies to life, and, as the contest becomes sharper and the range more restricted, only those responsive to the change can survive. It is a clear application of Spencer's "Survival of the Fittest."

The significance of these variations as factors in the evolution of species can be better appreciated if we consider the vast stretches of time in which they were having their influence. As an example we may take the case of the so-called wolf-tooth of our present-day horses. In the ancestral types this first of the four premolars was fully developed and had its opposing tooth in the lower jaw. As the lower tooth was the first to go the atrophy of disuse attacked the upper one, though it remained constant for a long period of time. Then an occasional individual appeared without it, later as many appeared without it as with it, and still later it had disappeared from most all and became very rudimentary as at present. The process of discarding this tooth absolutely has already occupied a period of probably not less than 50,000 years, and it is still unaccomplished. Thus it will be clear to us that in the slow progress of evolution, a long series of related forms must have intervened between the stages that we recognize as genera.

Inserted below is a tabular view of the American and European generic lines in their relation to each other and to the divisions of geological time. The Middle Era, in which we find the first mammals, is included.

Eras.	Ages.	Periods.	American Equine Series.	European Equine Series.
Cenozoic	Quaternary...	Recent.....	Equus	Equus.
		Pleistocene...		
	Tertiary	Pliocene.....	Pliohippus.....	Hipparion.
			Protohippus.....	
		Miocene.....	Miohippus.....	Anchitherium.
			Mesohippus.....	
		Eocene.....	Epihippus.....	Hyracotherium.
			Orohippus	
			Eohippus	
		Mesozoic	Cretaceous....		Reptiles, First Mammals, Birds.
Jurassic.....				
Triassic				

Mesozoic, 7,000,000 years; Tertiary, 3,000,000 years; Quaternary, 50,000 years (rough approximation).

Figuratively speaking, our highly individualized animals of to-day represent the topmost twigs of a tree. In the preceding branches there is a tendency to combine these characteristics in more comprehensive types and we find ancestral forms the more generalized as we pass downward towards the trunk. At the points where we meet the first Ungulate we find evidences that a branching has already taken place into odd-hoofed (Perissodactyla), where the middle toe is the centre of support, and into pair-hoofed (Artiodactyla), where the support is distributed between the middle and fourth. The paleontologist can by most probable outlines trace these two groups to the present, where they reach their highest expression in the Equidae and Bovidae. Primitive Ungulates first appear in the lowest Eocene formations of the western lake basins. These belong to a single genus, *Coryphodon*,

having five toes in front and behind with the third or middle toe decidedly the best developed, showing the odd-hoofed tendency. But this largest mammal of the Lower Eocene sheds very little light upon the five-toed beginnings of our little four-toed horses and it leaves a gap yet to be filled to the first incomings of the hoofed animals. Indeed the obscurity is general as to the source of the mammalian assemblage that here makes its appearance. Though it has left us a record through the Tertiary Age that is almost complete, below the Tertiary it seems lost, only a few diminutive mammals of very low type having been yielded thus far by the Cretaceons. The case is thus referred to by Le Conte: "It is impossible to explain this unless we admit times of rapid evolution. But even this is not sufficient. We must suppose, also, that these new types appeared here in America by migration about the end of the Cretaceons from some other country, where we hope yet to find the intermediate links."

Over forty years ago a skull was found in the Lower Eocene of England belonging to an animal which was at that time named the *Hyracotherium* by Professor Owen and which has since been recognized by paleontologists as representing the most primitive stage known in the horse's ancestral line. The molar teeth have six cusps on the upper and four on the lower ones and these are just beginning to fuse into crests. In each jaw the fourth premolar has three cusps, the third two, and each of the first and second premolars one. The teeth are short crowned and like those of omnivora. The fact that this skull is more primitive than any yet found in America would seem to indicate that the original stock was Eurasian and that it migrated eastward, by land connections then existing, to North America, here to continue its evolution. The succeeding genera in North America are increasingly numerous, while in Europe the line is disconnected, its occasional representatives probably being derived from those that had found their way westward from this country.

The American series starts with the *Eohippus* or "Horse of the Dawn." It comes from the Lower Eocene of Wyoming and New Mexico and is much more available for study than the *Hyra-*

cotherium. It is about the size of our domestic cat and is like the Hyracotherium except that the fusing of the cusps into crests has progressed and the fourth premolar is beginning to look like a true molar. The hand of this animal has four functional fingers, while the thumb is rudimentary and reduced to a splint. The foot has three functional toes, no trace left of the first toe, and the fifth reduced to a splint. It might be explained parenthetically that terms applied to the human digits are used here in describing the front feet in order that we may more readily follow these changes by reference to our own fingers.

The second in the series is the Prohippus or "Mountain Horse." It is found in the Middle Eocene of Wyoming and in size is somewhat smaller than a fox. Like the Eohippus it has four functional fingers and three functional toes, but the splint of the thumb has disappeared as has the splint of the fifth toe. The radius and ulna and tibia and fibula are still distinct. The crests on the molars are clearer than in the preceeding stage, and the last premolar is like the true molars, while the next to the last is beginning to become so. The canines are well forward and the diastema or "place for the bit" is distinct.

The Epihippus is from the Upper Eocene and is about as large as a fox. In this stage the four fingers and three toes of the Orohippus are still retained, but the central finger and central toe are becoming larger. The once rounded knobs of the molar teeth are now almost completely converted into crests while the third as well as the fourth premolar has become like the molars.

The fourth in the line is the Mesohippus, found in the Lower Miocene White River Formation. It is somewhat smaller than a sheep and stands upon three fingers and three toes, the fifth finger of its Eocene ancestors being reduced to a splint. The side digits are now bearing little weight, while the central ones are much the largest. The crests on the molars are completely formed and three of the premolars have become true molars.

The Miohippus from the Upper Miocene is about as large as a sheep. Like its predecessor in the series, it has three fingers and three toes, a rudiment of the fifth finger still remaining. The

radius and ulna are loosely united, and the tibia and fibula are co-ossified at their distal ends.

The *Protohippus* is found in the Lower Pliocene. It is nearly as large as an ass and represents the first stage where the lateral hoofs are not functional. It stands upon the middle finger and middle toe. The side digits, that is the second and fourth, are still complete but much more slender than in the preceding stage, and they are clear of the ground. The hand still retains tiny nodules of bone at the back of the wrist or so-called knee which are the remains of the first and fifth digits.

In the *Pliohippus* from the Upper Pliocene we have the last stage before reaching the true horse. It is as large as an ass, and in some species the side digits have almost if not completely disappeared.

The last in the evolutionary line is the genus *Equus*, which is first met with in the Upper Pliocene, an animal in all essential details of structure similar to our modern horse.

Briefly reviewing this co-ordinating degeneration and development in its relation to environment, there appears a remarkable example of the power of the animal organism to keep pace with changing surroundings in adapting itself to new requirements. At the beginning of the Age of Mammals, where we find the four-toed *Eohippus*, the North American climate was tropical, and dense forests covered the greater part of the country, the ground was moist, and there was an abundance of tender, green food. The spreading, lateral toes of the little primitive horses were well adapted to the soft turf, their short, tuberculate teeth were sufficient for the tender herbage, and the dense, tropical vegetation offered them protection against their enemies. Horse and climate now evolve together; the continent is steadily rising, the forests become thinned, the land is getting drier, the climate colder, and beasts of prey are becoming more formidable and swifter of foot. The animals must adapt themselves to these changed conditions or become extinct. The ancestors of the horse take the former course, they become larger, the lateral elements of the limbs fall away, while the axial ones develop, giving more speed and a foot

better fitted to the harder turf of the more elevated land. The neck and head are elongating to conform to the increasing height, while the teeth gradually lose their omnivorous characters and become adapted to the tougher grasses of the plains. And so it all goes on through the Tertiary Age. It would appear that the horse develops with the plains until when we reach the beginning of the Quaternary, we find him one of the most specialized of animals in his adaptation to these plains which have become his natural environment.

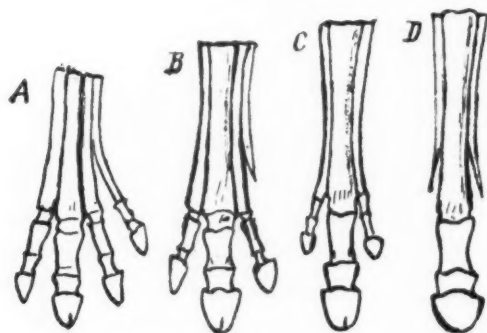
During an expedition sent out by the American Museum of Natural History into Northern Texas in 1899, there was found, among fragments of others, a complete skeleton of one of these Pleistocene horses which is now set up in this museum and represents the last of its race in America. There are no features in this skeleton to distinguish it generically from that of existing species. It is somewhat larger than the zebra, with bulging forehead, short neck, rather long body, and short legs. The lateral digits of its ancestors are gone from both front and hind feet, and there are two rudimentary metacarpal and two rudimentary metatarsal bones. The dentition is 3 incisors, 1 canine, 3 premolars and 3 molars on each side above and below, making 40 teeth in all. The first of the four premolars of an earlier stage having disappeared from the lower jaw, its corresponding tooth above has ceased to be functionally developed, and the remaining premolars have assumed all of the characters of true molars.

It is this horse that before the great ice sheets covered the northern parts of North America and Europe roamed over the open lands of all the continents except Australia and then, during the Glacial Period, became extinct in America and later disappeared from the scene in Europe. Here his trail sinks beneath the geological horizon just as the first scratchings and chippings of man are appearing above it. Why, we do not know. It has been assigned to the ice during the Glacial Period, but they also became extinct in Central and South America, where there was no ice sheet and survived in Europe until the Postglacial. But we might now be in a horseless age indeed had not a sufficient number of

species survived in Asia and Africa to continue the line, and to-day we have the horse, the ass and the zebra—three branches that have come down to us from this prehistoric wild horse. These descendants are still to be found wild in Asia, where we have Przewalsky's Wild Horse, of which little is known, and the Asiatic Wild Ass, while in Northern Africa we have the African Wild Ass, and in the south of that continent there are several species of zebra. The so-called wild horses that until recently roamed the plains of North and South America were feral, that is, they were not truly wild, but descendants of domesticated horses brought here by Europeans and abandoned. That these three branches sprang from a remote common parentage is pretty well proven by similarity in striping. The ass and zebra show the strong back stripe which occasionally crops up in our domestic horses, the circular leg stripes rarely showing in all three. This community of marking strengthens our presumption that, as the Tertiary ancestors of our horses lived in an environment of sunlight and shade, they were striped like the zebra, for this coloring makes less contrast in the sifting sunlight or moonlight of the forest and affords a degree of concealment against prowling carnivora. But at present we have no means of telling at what period this branching occurred that led away from the stripes, though the change in both conformation and color was undoubtedly due to change in environment.

It is inferred that the Old World horses came from America because of their appearance in England, Northern Italy and Northern India in the same geological period in which they are found so abundantly in America, and also from the fact that a distinct connecting link between this horse and his three-toed ancestors, has been found only in America. The fact that the camel appears simultaneously with the horse in the European series, lends support to this conclusion, as there is now no doubt that the camel is an exclusively American bred animal, sharing the Preglacial uplands with the horse, and it is most likely that he migrated to the Old World at about the same time. At the end of the Tertiary Age the continents stood higher above sea-level than

at present, and the plains with their covering of grass had come into existence. At this time there was land connection between North America and Asia, and it is then that our American Wild Horses are supposed to have started on their journey to the Old World. Among these immigrants was the *Equus stenonis* which

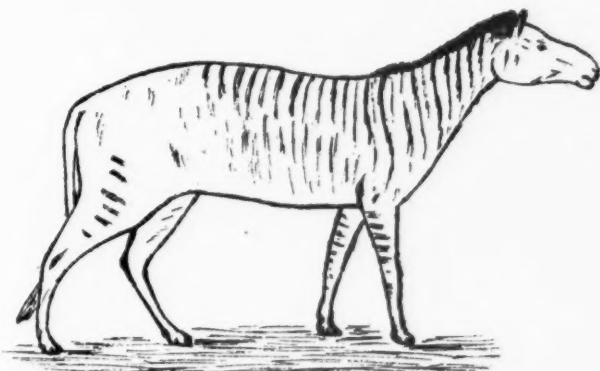


has left its remains in the Pliocene deposits of Britain, France, Switzerland, Italy and North America. Two others, *Equus sivalensis* and *Equus namadicus*, found their way into India, while other species probably settled in Central Asia. It is believed by some paleontologists that *Equus sivalensis* and *Equus namadicus* became extinct, and that *Equus stenonis* gave rise through one branch (*Equus robustus*) to our modern domestic horses (*Equus caballus*) and through another (*Equus ligeris*) to the Burchell group of zebras (*Equus burchelli*).

Though man probably lived in Western Europe before the Ice Age, no trace of him has been found associated with the remains of the Preglacial Wild Horse. Postglacial man came in contact with him in Europe, but they had become extinct in North America before its supposed colonization by the original inhabitants of Asia, though in South America there are indications that they persisted until man's advent. It is in the Rough Stone Age that the remains of horse and man are first found together, and, as they are here associated with chipped stone implements, fire debris and pottery, we conclude that the horse was at that time

hunted and eaten by this cave-dwelling man. The taming and breeding of horses did not take place until thousands of years after man and horse first came together. They were probably first domesticated in Central Asia and North Africa, but are not represented upon Egyptian monuments earlier than the eighteenth dynasty. The first Spanish explorers to the New World found no horses and the Indians knew nothing of them either by contact or tradition, yet when the horse was reintroduced to this country by the white men in the sixteenth century, he thrived and increased, showing how well he was adapted to the native home of his ancestors.

As man's companion in the harness of civilization we find the modern horse almost perfect in his adaptation to his native habitat, yet the rudiments of his conformity to a tropical environment still linger, and it is not quite correct to say that the lateral hoofs have absolutely disappeared. It is thought by some that the chestnuts, or horn-like processes on the fore and hind legs are



the remnants of the first digits; others regard them as the remains of cutaneous glands, which seems less likely, but any doubt that in the ergots or horn-spurs of the fetlocks we have the coalesced second and fourth hoofs, should be cleared away by recorded cases of reversion to the three-hoofed type, in which the ergots are en-

tirely absent. Nature is slow to get rid of these vestiges while they do no harm, but, as the hard ground crust or frozen snow of the northern plains would frequently tear the ergots from their attachments and the consequent bleeding making the wild horses an easier prey to their carnivorous enemies, they should, in the course of adaptive modification, be discarded, and this is exactly what has occurred in the case of the Celtic pony of Iceland which represents in this and in some other respects the highest degree of specialization yet reached by any member of the Horse family. Though we might naturally look upon our modern wild horses, asses and zebras as the nearest to the primitive equine type, this is only true as to colors and conformation. Here we have the retention of those features most suitable to an environment that is but little changed, while the discarding of the useless remnants of primitive organs has made the greatest progress because there has been no interruption; natural selection has not given place to artificial selection, and the line remains unbroken. It is among our domestic types, produced by cross-breeding, that we find tapir-like muzzles and the most prominent ergots and chestnuts; crossing tends to atavism, and the more the bloods are mixed, the more gross become these ancestral vestiges.

In any age in which he may be found, the horse, wild or domestic, will possess some characters of a group which predominated in a former age, united with some characters of a group not yet in existence, and with these characters possess those of a group already existing. Thus he clearly demonstrates a principle applicable to the evolution of all animal life.

Thanks to the energies of Professor Henry F. Osborn and his associates in the work, Dr. W. D. Matthew and Mr. J. W. Gidley, there is now available for study at the American Museum of Natural History at New York City, a series of fossil skeletons illustrating the horse's evolution that in number and completeness is probably unequaled in any other museum in the world. Those who share the popular interest in the ways of nature will be well repaid for a journey to this collection, while to the one having a special interest in the subject, it affords a rare demonstration.

SOME NOTES ON THE "TRYPS."

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Having been out of the United States during the greater part of a year, I have not kept up with what has been done by our home people as regards the study of the different diseases which are the result of the little parasites included in the trypanosomidæ. Abroad, more especially because of the brilliant results with the treatment of that dread and until quite recently incurable disease, "sleeping sickness," a most energetic campaign is going on against all the various forms of trypanosomes that attack man and animals:

As is well known the trypanosomidæ comprise two genera:

- (1) *Trypanosoma*.
- (2) *Trypanoplasma*.

The genus *trypanosoma* is characterized by the possession of a longitudinal undulating membrane, the thickened border of which takes its origin posteriorly from a centrosome and terminates anteriorly in a flagellum. Division usually takes place longitudinally.

The genus *trypanoplasma* has two flagella, one anterior and one posterior. Both arise from one centrosome; the anterior forms the thickened border of the undulating membrane; the posterior flagellum curves around the posterior end of the parasite, and is then prolonged into a flagellum about equal in length to the anterior one.

The trypanosomidæ occur in fish, amphibia, reptiles, birds and mammals.

Most of these are very incompletely known, and it is only some species in mammals that have been at all closely studied.

Of the trypanoplasmata two only are handled in the laboratory:

- (1) *Trypanoplasma Boreli*.—20M.* long, 3 to 4M. broad.

* M—Micrometre.

Each flagellum 15M. long. It is curved in shape. The undulating membrane on the convexity. The anterior end more pointed than the posterior.

This parasite is found in the blood of the "red eye" (*Leuciscus erythrophthalmus*).

Trypanoplasma Danilewskyi.—15 to 20M. long, less than one broad. Found in the gut of leeches (most probably derived from the blood of some animal).

The following are some of the most familiar of the trypanosomata:

- (1) *T. Lewisi*.
- (2) *T. Brucei*.
- (3) *T. equiperdum*.
- (4) *T. Evansi*.
- (5) *T. equinum*.
- (6) *T. Gambiense*.
- (7) *T. ungandense*.
- (8) *T. Theileri*.
- (9) *T. Transvaaliense*.
- (10) *T. rotatorium* (Gruby).
- (11) *T. Carassi* (Mitraphanow).
- (12) *T. Eberthi* (Kent).
- (13) *T. Corbitis* (Mitraphanow).
- (14) *T. solae* (Laveran).

The *T. Lewisi* is the most commonly studied. It is found in the blood of common sewer rats. A large percentage of sewer rats in England are infected, and most probably rats in this country also harbor this parasite. It is non-pathogenic. Very common in rats of tropical countries. White rats are easily infected. Some think that infection can be transmitted by the rat flea. It is 24M. to 25M. by 1 to 4M.

More slender than the *T. Brucei*. Its undulating membrane less wide.

T. Brucei is the cause of the disease known as nagana, or tsetse fly disease; it is highly pathogenic, and fatal to all mam-

mals. The parasite measures 25M. to 30M. long and 1.5M. to 2.5M. broad.

Nagana is found throughout central Africa. The symptoms of this disease very much resemble surra: Advancing anæmia, and hydræmia with rapid emaciation. In the horse there occurs watery discharge from the eyes and nose, puffy swelling under the belly, sheath of penis; pale mucous membrane, conjunctivitis, keratitis and often total blindness. Like surra, as long as the strength of the patient keeps up the appetite is not destroyed. Morphologically this trypanosome closely resembles that of surra. It is shorter and more compact than the *T. Evansi*, and the flagellum is shorter, the posterior end is blunter, and the protoplasm contain larger and more granules. The mean length of the *T. Brucei* is less and the breadth is greater than *T. Evansi*. The distinction between nagana and surra is best proved by the fact that an animal immunized against nagana is yet susceptible to the surra parasite.

T. Equiperdum.—This is one of the smallest of the trypanosomata, measuring 18 to 26M. by 2M. The disease called dourine is the result of infection by this parasite. It is also called maladie du coit, covering disease, etc. Dourine has been called syphilis of the horse; and was always classed as a venereal disease of the horse. Rougeti described it in 1896 and it has been known in Europe for a century or more, but until a comparatively recent date but little was known about it. The horse and ass are the hosts of the *T. Equiperdum*. The horse is most susceptible; it takes a chronic form in the ass. The rabbit is easily infected artificially, the disease lasting from one to four months. In mice 11 to 15 days; but the infection of these animals may be recovered from. Dogs, especially young ones, are very susceptible to artificial infection; they have irregular fever, lose weight, become œdematous, and there is ulceration of the mucous membranes.

This disease is of interest to American veterinarians because it has occurred, and may yet be present in the United States. It is common in Algeria, where it is known as dourine, also occurs in Russia, Hungary, Bohemia and southern Europe. In Africa

along the whole of the coast of the Mediterranean. In Asia, Syria, Asia Minor, Persia and some parts of India. It has been described as occurring in Chili.

Dourine is transmitted from one animal to another during coitus.

It would appear possible for it to be carried by flies and other insects, by going directly from an infected part of an animal to the genital organs of another. Course of the disease slow; usually three well defined periods:

- (1) Changes limited to genital organs.
- (2) Cutaneous and glandular lesions.
- (3) Lesions of the central nervous system.

First.—In the male appears 11 to 12 days after coitus. (Edematous swelling limited to the sheath, sometimes extending to the testicular region, or even to the abdominal walls. The oedema may be cold and painless, or hot and painful, permanent or intermittent, disappearing from one place and appearing at another; there is often a certain amount of infiltration into the penis, the surface of which may show several erosive patches or various eruptions. The urethral mucous membrane may be everted. These appearances vary very much in character and are neither constant nor essential. The inguinal glands are usually swollen and indurated. After three or four weeks the symptoms are somewhat modified and the various swellings become painless and a large collar-like swelling forms where the sheath joins the mucous membrane.

Micturition is painful, and, although sexual desire persists, it is difficult and painful. During this stage general symptoms are not of much significance. Temperature oscillates between 100.5 and 101 F. Appetite continues good, but there is wasting, especially behind. Bowing after exertion and curving of the back may be noticed.

In the female the first symptoms may be noticed five to six days after coitus; the lips of the vulva are swollen; the mucous membrane vivid red. The oedema spreads to the perineum and dependent parts. A clear mucous, which soon becomes abundant,

yellow and sticky, flows from the vulva; the mucous membrane is covered with red patches and is in places thickened and shows various forms of eruptions, which, however, are not characteristic.

There is intense pruritis, which is accompanied by the usual movements of the parts; the animal is apparently continuously in heat. After a time there is a modification of the symptoms; the œdema invades the udder and inside the thighs. At the site of the previous red patches on the mucous membrane, an exfoliation of the epithelium occurs, leaving white cicatrical patches with irregular edges. The general symptoms are the same as in the male.

Second.—Aggravation of the general symptoms, weakness, various innervation troubles, cutaneous quiverings, an almost constant sign is the occurrence of a spasmodic weakness of the posterior limbs, with flexion of the fetlock—an accident first seen during trotting, later during walking and still later when resting. Another symptom of highly diagnostic value is the occurrence of projecting round cutaneous *plaque* of about the diameter of a half-dollar to the size of the palm of the hand; they are not hot nor painful, but are thickenings of the skin and the hair bristles over them. They form on the trunk in different places, especially about the shoulders, flank and croup. The appearance of the *plaques* is irregular, sometimes there is a general outbreak preceded by one or two at intervals varying from one to several days; sometimes they all appear at the same time at all points. They may disappear in a few hours, or last five or six days, leaving only a patch, which is seen as a dry area, while the rest of the skin may be wet with perspiration.

These *plaques* are in some cases œdematous and may transude a little serous fluid, which sticks the hairs together.

These *plaques* are pathognomonic. Lymphatic glands in all parts are engorged, painful and swollen. In some cases there is catarrhal-bronchitis, permanent or intermittent, or a dry cough. Sometimes there is a cutaneous pruritis or there may occur inflammatory swelling of the articular synovial membranes and tendons.

These conditions may occur separately or combined. Weakness and emaciation progress; muscles atrophy; progression is difficult, limbs drag, the animal stumbles.

In stallions erections are painful and short and incomplete; coitus becomes impossible, females may abort. Temperature varies from 101.5 morning, 102.5 evening.

Third.—Paralytic symptoms prevail, appetite nil, mucous membrane pale, œdema of the dependent parts, urine thick, urea increased, salts increased and in some cases albuminuria. Superficial abscesses easily provoked. Paresis, paralysis and later paraplegia and death.

This disease lasts from eight to eighteen months or even two years, although some end fatally in two to three months. Complications may hasten fatal issue. Recovery rare. In the ass the symptoms often pass unnoticed, the only constant symptom being œdema of the penis, until later, when the symptoms are the same as in the horse.

Autopsy.—Usually there are accessory conditions noted; these arise from complications as pneumonia, purulent infection, etc.

General conditions are: Slight thickening indicating the site of the *plaques*. A more or less extensive gelatinous exudate is found under the skin and penetrates between the muscles and around the vessels.

Muscles pale and atrophied. Fat has disappeared, bones fragile, spongy and may be impregnated with gelatinous exudate; marrow is diffuent and reddish brown in color; synovial membranes injected, fluid red and turbid, articular surfaces often soft and eroded.

The *viscera* show no specific lesions. There is faecal stasis in the colon and rectum; spleen enlarged; kidneys passively congested; serous exudates in the pleura and pericardium; myocardium soft, pale and friable. Lymphatic glands large, soft and on section exude a yellowish fluid and show greyish to red patches, the sites of previous hæmorrhages. In the male the tunica vaginalis incloses a little albuminous fluid with fibrin

shreds, testicles are soft and flabby, often small and their substance replaced with connective tissue.

The mucous membrane of the penis usually shows no trace of previous lesion. In the female the vaginal mucous membrane is often thickened and marked with decolorized patches. The central nervous system shows the chief lesions in the cord; these are often limited to the lumbar and sacral regions. If paralysis has persisted for some time the cord is transformed for a variable length into a reddish brown mush. This is missing if the disease has been rapid. Histologically the cord shows degeneration of the posterior columns, especially marked in the cervical and lumbar regions. The nerve fibres show round-celled infiltration. The muscles show fatty degeneration and atrophy, unequally distributed so that in some places the muscle fibres are degenerated and in others normal. The lesions found in the spinal cord (posterior columns), and also in the nerves of the extremities point to the essential lesions being those of polyneuritis, hence the name has been suggested for the disease: Infectious polyneuritis of the horse.

T. Evansi.—This trypanosoma is the cause of another disease which many veterinarians in the United States may have a chance to observe, although, to the best of my knowledge, surra does not nor ever has existed in this country. On more than one occasion at the University of Liverpool, when conversing with Prof. Owen Williams (the eminent author of several of our most treasured veterinary works), he gravely informed me that he saw many animals that were undoubtedly suffering from surra when he was employed as chief inspecting veterinary officer at the British remount depot near New Orleans, Louisiana, during the late Boer war. When I denied having surra in the States Prof. Williams would reply, "Why of course you have; I saw lots of surra animals when I was there." While in the Philippines I made surra a special study and examined hundreds of animals suffering from it, and am sure would recognize the disease here, but in my opinion there is not a case of surra in the United States. Perhaps some of our learned colleagues can enlighten us on this

subject. The *T. Evansi* measures 20M. to 30M. long and 1M. to 2M. broad. The following are extracts taken from a paper on surra read by me before the Veterinary Medical Society of the University of Liverpool, on the night of December 9th, 1906:

"Surra.—A fatal disease of solipeds, caused by the presence in the blood of a parasite called *Trypanosoma Evansi*, named after Dr. G. Evans, a member of the Army Veterinary Department, who described it in 1880.

"Surra was reported by Steel, November, 1885. By Gunn as occurring among some animals in a mountain battery in India, in 1887. This disease has been known for generations on the north-west frontier of India. In 1870 the Third Punjab Cavalry lost 350 horses from a disease which was undoubtedly surra. Geographical distribution: Philippine Islands, India, Burmah, Sumatra, Java, French Indo-China (Southern Europe), etc. Can be conveyed to rabbits, rats, guinea pigs, dogs and some other animals by inoculation. Foregoing animals die from the disease, when the material introduced is taken from animals suffering from surra. Parasite is carried from one animal to another by various agents: Flies, mosquitoes, leeches, birds; any method by which an animal can become inoculated with infected blood will produce the disease. Lingard, who is the author of the most elaborate reports on surra in existence; Burke, Evans and Steel, all veterans in the study of this disease, attribute the cause to swampy grasses. I am still of the opinion that grasses that have been inundated, in stagnant or swampy water, may carry the infection, but in what form I am unable to state. It is well known, and satisfactorily demonstrated, that the parasite undergoes changes and multiplies in the animal body, but whether it has a life cycle outside the body similar to the excorporeal existence of the malarial parasite, or not, has not been proved; most probably it has; if so, there is no reason why part of its life does not take place, either in stagnant water, or in the body of one or more inhabitants of the same. The diptera are certainly accountable for more infections than any other agents.

"Blood suckers of the class Nemocera are found in the following families:

"(1) Culicidæ (mosquitoes).

"(2) Simuliidæ (buffalo gnats).

"Class—Brachycera.

"(1) Tabanidæ (horse-flies, gad-flies).

"Genus, (a) Tabanus.

"(b) Hæmatapota.

"(c) Pangonia.

"(d) Chrysops.

"(e) Hadrus.

"Of this class the tabanus tropicus is the insect that most probably carries the trypanosome of surra most frequently.

"Class—Muscinae.

"Genus, (a) Stomoxys (*S. calcitans*).

"(b) Hæmatobia.

"(c) Glossina (tsetse fly).

"The name surra has no pathological significance, simply being the Hindoo for rotten. Light-colored animals attract flies more than dark colored. The main facts regarding the pathological phenomena observed in surra were published in the *Veterinary Journal* in 1902 and 1903 by different writers who were able to study the disease as it occurred in the Philippine Islands.

"Atoxyl, which I will mention later on, has cured diseases caused by trypanosomes, and should cure surra."

T. Equinum.—Length 20M. to 25M. by 2M. to 3M. This parasite resembles the *T. Brucei*, but its centrosome is much smaller; in fact, it is so small that its existence has been denied; an animal immunized against the *T. Equinum* is still susceptible to infection of *T. Brucei*.

Trypanosoma Equinum is the cause of the disease called maladie de caderas, which occurs in Central and South America. It is thought that the disease is transmitted from one to another by a biting fly, the *Stomoxys calcitans*. The symptoms resemble those of surra-remittent fever, œdema and wasting, the most characteristic is paralysis of the hind legs, from which the disease takes its

name. It runs a chronic course, two to six months. Sometimes there is present hæmoglobinuria. Mice, rabbits, dogs, etc., are susceptible. Guinea-pigs rarely. Horned cattle are refractory. Incubation period, five to eight days.

T. Gambiense was the first human trypanosome to be described. It was reported in the fall of 1901 by Dr. Dutton, who discovered it in the blood of a European in Gambia. The symptoms were irregular relapsing fever, œdema, congestion of the skin, erythematous patches associated with thickening of the skin, loss of flesh, increased pulse and respirations. The *T. Gambiense* measures 18M. to 25M. long by 2M. wide.

Trypanosoma Ugandense is the most important of the "tryps" from a pathological standpoint, and more research has been carried on in connection with it than of any of the others. It measures 18M. to 26M. long by 2M. to 2.5M. wide. It is found in the cerebro-spinal fluid of patients suffering from that terrible malady called "sleeping sickness," and claims for its victims thousands of the natives of the West coast, Central and East Africa, as well as a goodly percentage of whites who go to those parts. Until quite recently this disease has been thought to be caused by the *Filaria perstans*, while some others were of the opinion that it was the result of lesions of the pituitary body.

The symptoms are: Drooping of the eyelids, puffiness of the face, papular eruptions on the skin, enlargement of the cervical lymphatics, a feeling of cold even when the patient is lying in the tropical sun. It is characterized by somnolence of progressive degree, emaciation and fatal termination.

A great work has been and is at present going on in connection with the cure of this disease. Prof. Koch is at present at work carrying on the treatment of sleeping sickness, with a compound which is called "Atoxyl," first discovered by Dr. Thomas, of the Liverpool School of Tropical Medicine, in 1902; the experiments begun by Dr. Thomas were continued by Dr. Everett Dutton and Dr. Myers, both of whom died from the disease they were experimenting with; they were sent out to Africa from the Tropical School of the University of Liverpool. They succeeded in per-

fecting the treatment and cured many patients, but unfortunately Dr. Dutton died at Kasongo, and Dr. Meyers died on the voyage home, both in 1905. Since that time much has been done in the treatment of sleeping sickness. Last winter it was reported that Prof. Koch had discovered a cure for sleeping sickness; this was about December 3, 1906; it was stated that Prof. Koch did not make known the discovery until he had cured thousands of cases, and had had them under observation three months after cure; it also stated that he had made the discovery of the curing compound only after many years of work in that line in dangerous climates, and had almost given up the cause as hopeless. This statement was promptly corrected by Dr. Koch in his report and full credit given to the Liverpool men. At the present time Prof. Koch is carrying on his great work in the heart of Africa. On one of the Sesse islands in Lake Victoria Nyanza are some buildings which the British Government has placed at the disposal of Prof. Koch; it is there that the afflicted natives flock to receive the cure.

This spring the University of Liverpool has sent out another party on an expedition against this and other dangerous tropical diseases. It is to be hoped that they will be entirely successful in their undertaking and will return safely.

Because of the very intimate relation that exists between sleeping sickness and surra, and other diseases caused by the trpanosomidæ it is thought by most investigators of these diseases that Atoxyl (which is a compound made up of a prepared serum and arsenic) ought to cure surra and its allied diseases. It was because of the great hopes, and confidence displayed in Atoxyl by the scientists who were among my teachers at the Liverpool University this year, that I applied to the War Department to be allowed to go to the place where Prof. Koch is at work, but I regret to say that the application was refused. Later on perhaps the method of making Atoxyl and the technique of its administration will be made known, and it may be that we will then be able to handle surra, etc., as easily as any other amenable disease. In a report from Dr. Emile van Campenhout, who has been curing European patients suffering from sleeping sickness, at the Water-

mael Hospital, Brussels, the doctor states that he has cured three patients in the last stage of the disease to whom death otherwise would have been a matter of weeks. The treatment was sulphate of strychnine internally, with injections of the arsenic compound Atoxyl for four months at a time. The dose injected was gradually increased from 25 centigrams at the beginning of the treatment up to 80 centigrams by the end of a month, when the trypanosomes were found to have disappeared from the blood. The dose was then gradually reduced to 25 centigrams. There were no relapses. Dr. van Campenhout has dealt with thousands of cases of natives in the early stages of the disease and states that in Atoxyl there has been found as powerful a specific against sleeping sickness as quinine is against malaria. (It has been reported that Dr. Koch made a similar statement.)

Among exceptionally interesting cases mentioned by the doctor is that of a young man of keen intelligence so stricken with the deadly disease that at mealtime he would fall asleep between the grasping of a cup and raising it to his lips. He is now completely restored to health.

T. Theileri.—Length 36M. to 65M., width 2M. to 4M. Found in the blood of cattle in the Transvaal, suffering from a disease known as "gal ziekte"—gall sickness. Transmitted by a biting fly (*Hippobosca rufipes*).

T. Transvaliense.—Length 18M. to 50M., breadth 4M. to 6M. The undulating membrane is but little developed. Found in the blood of oxen.

T. Rotatorium.—40M. to 80M. long, 4M. to 6M. broad. Found in the blood of frogs (*Rana esculenta* and *Rana temporaria*). Flagellum 10M. to 12M. long. Surface of body striated longitudinally.

T. Carassius.—Besides the forms with the undulating membrane and flagellum, disk-like forms are found. In the blood of the carp (*Carassius vulgaris*) and the tench (*Tinca vulgaris*).

T. Eberthi.—Found in the gut of the chicken, duck and goose. Not a blood parasite.

T. Corbitis.—Length 30M. to 40M., breadth 1M. to 2M. Flagellum 10M. to 15M. It is long and thin. Found in the blood of the mud-fish (*Corbitis fossilis*).

T. Soleae.—Found in the blood of the sole.

Aino is the name for a disease in Somaliland, affecting camels, horses, asses and mules. It is caused by a trypanosome, and is very fatal to camels.

Trypanosomes are easily detected in fresh blood with a one-sixth or one-seventh lens. They are actively motile, and may be seen displacing the red cells by their motions. As they come to rest the undulating membrane and flagellum are visible. In stained specimens (Romanosky) an oval nucleus lies about the middle of its length, and near the blunt posterior end a small stained particle is clearly visible, the centrosome. From this in most species the flagellum starts, and can be seen as a distinct wavy thick red line extending the whole length of the organism, and continued beyond as the long (anterior) free flagellum. The portion (unstained) between this external wavy margin and the blue stained body of the organism is the undulating membrane.

Multiplication of trypanosomata takes place usually by longitudinal division. The nucleus and centrosome divide into two or more parts.

The trypanosoma becomes more or less quadrangular in form and from each centrosome a new flagellum is seen starting.

Multiplication by other modes takes place: Conjugation, transverse division, formation of amœboid forms, etc.

Sexual differentiation is suspected; it is certain that in the organs of a case of trypanosoma infection numerous strange forms can be seen, but there is nothing definitely known about them.

If, as is sometimes the case, the parasites are very scanty in the blood of an infected animal, they can often be found in the œdematous fluid so constantly present in trypanosomiasis. It may be necessary in some instances to centrifuge the blood. Agglutination readily occurs by following the ordinary technique. The most delicate test is a sub-inoculation into a highly susceptible

animal; this is best done into the peritoneum, although subcutaneously is almost as certain.

Auto-agglutination occurs and is a sign that the infection is dying out. Sometimes the mass of parasites become so large as to be seen with the naked eye; this is especially the case if the blood examined is cooled; the individual trypanosomes, however, do not lose their motility.

Through the kindness of Mr. Robert Newstead, F. Z. S., Entomologist at the University of Liverpool, I am in possession of some tsetse flies, both male and female. Some of the readers of the AMERICAN VETERINARY REVIEW may be interested in a short description of them:

Tsetse fly.—Order, diptera; family, muscinæ; genus, glossina.

Characteristics: Narrow bodied, elongated fly, dull gray or reddish brown color, 7 to 12 m.m. long. Recognized during life by wings being closed flat one over the other, like a pair of scissors, and projecting over the abdomen behind. Probosis ensheathed in palpi, equal in length to thorax (minus scutellum). Base of probosis expanded into an onion-shaped bulb. Wings characteristic; there is a sharp bend in the fourth longitudinal vein before it reaches the anterior transverse vein. Abdomen has generally well marked transverse bands, brown in color; they are interrupted in the middle. Sex easily distinguished by the male genitalia being oval and tumid, with a vulviform median groove (anus), running from the anterior margin to the middle. Life history incomplete. Unlike most of the diptera, this fly does not lay eggs; it is puparious; the female exudes a fully developed larva, which matures in the body of the parent. Does not cast off the old larval skin, the only change being the pupa increases in size, the larva and pupa are similar. It takes several days for the larvæ to become pupa, the period of incubation is five to six weeks. The pupa is 6 m.m. in length and 3 m.m. broad; it consists of six segments.

Tsetse flies inhabit damp low-lying districts; their flight is confined to small areas; reproduction of the species can be carried

on without the medium of blood; heavy rains may kill them. Most numerous during hot sultry weather, just before rains. More plentiful during the winter season, April to September. Flies most active during the heat of the day; they rest early morning and evening. The flight of the tsetse fly is very direct; it pounces upon its prey and fills up in 20 to 30 seconds after biting, and is infective for 48 hours after receiving infected blood. There are several species, but the *G. morsitans* and *G. palpalis* are the two that are commonly spoken of as tsetse flies. The first mentioned is one of the smaller, measuring about 7 m.m., very narrow head, eyes converging towards the vertex, abdominal bands not as deep as most and paler in color; it is the intermediate host of the *Trypanosoma Brucci*. The latter is the darkest of all the species, the third joint of the antenna dark brown to black. It is the intermediate host of the *T. Ungandense*, and the *T. Gambiense*.

MAY 29, 1907.

THE REVIEW IN NEWFOUNDLAND.—Dr. J. Fergus Donnelly, St. John's, N. F., writes, under date of June 20: "I have taken the REVIEW since last November and would not be without it at any cost, as I consider it worth its weight in gold."

SUIT AGAINST A VETERINARIAN.—A London stockbroker named Simmons, in 1904, employed Charles Sheather, M. R. C. V. S., a well-known London practitioner, to examine a black cob mare, 14.3 hands high, which the former wished to purchase for a saddler. The veterinarian made an examination, and with the exception of an enlargement of the tendons of the off fore leg passed her as sound. The purchase price was \$300, and she was delivered to her new owner. In a short time Simmons notified Sheather that the mare had spavins, that he intended to sell her at auction and sue the veterinarian for the difference between what he gave and what she would fetch at auction. Sheather purchased the mare at the sale for less than \$100 and used her continuously in his practice without any lameness manifesting itself. She was then slaughtered, and at the trial recently the hock bones were exhibited, showing perfect freedom from disease and Sheather got the verdict.

INDIGESTION IN THE HORSE.

By D. O. KNISELY, D. V. S., TOPEKA, KANSAS.

Presented to the Meeting of the Iowa Veterinary Association, January 28, 1907.

It is with pleasure that I am here before this association and able to take part in this program with you. I feel sure there is in these meetings more real knowledge gained than in most any other way we can recommend. Here with all who attend these meetings we are sure they have all gone through with hard study trying to gain a knowledge that would fit them for a higher place than the average wage-earner and to further our usefulness to the world at large, and in this branch of work the veterinarians have distinguished themselves among the best. There is no other profession that has gone more to the front and made itself more recognized in the same length of time than our profession.

But we all realize how much more there is to be brought out and to determine just what should be done to relieve the suffering brute. There are many instances in all of our practice that we feel sure there should be some way in which to relieve our patient. In many instances this is the case, but in too many it is not the case.

In my paper I will take up the subject of "Indigestion in the Horse," one that has been studied by every veterinarian in our country (or at least should be). Many good articles have been printed in our REVIEW, for which all of us should thank the publishers, as well as the writers. In the January number we have a couple of good articles, one by Dr. R. P. Lyman, and one by Dr. J. F. DeVine. Both of these are good articles, and have taken time to note the changes brought on in these intestinal disorders, and while they are very instructive and should be closely observed by any practitioner, I think all of us must agree on one thing, the mode of making a positive diagnosis in these cases, a thing most essential to us, before we will be able to come to a precise mode of treating them. Now, while so many good papers have been written on this line of trouble, I am sure there is room

for all of us to enlarge on them, and, further, will say it will be some time before all the intestinal troubles of the horse can be distinguished or separated one from the other, and I for one shall not try in this paper to differentiate these troubles. To do so would require too much time and a much more theoretical brain than I have. These are nice subjects to sit in the office and tell the differences of the lesion and the amount of structure involved, but to go out and get your subject and hunt them out is altogether another proposition.

I find that many cases have great variations of symptoms. I have seen many horses with stomach trouble that would sit on their haunches, while others would show no symptoms like them at all. Again I have noted symptoms in volvulus and intussusception where they would sit on their haunches, and again others not do so at all, but show great uneasiness all the time with apparently no intermission of pain for hours. So that to tell how you may be able to differentiate, I am unable to do so, at least this has been my experience with intestinal troubles of the horse, and when reading articles in the *AMERICAN VETERINARY REVIEW* I always think there are others who have trouble as well as myself.

I will frankly say that intestinal troubles of the horse have caused me more worry than any other thing in my work, not that I am better versed in all others, by any means, than this, but from the fact that cases that apparently did not have any bad symptoms on arrival would follow along and in from six to twelve hours die for me in spite of all treatment. Again, cases that came into the hospital that looked as though they could not possibly live an hour would after five or six hours be apparently as good as ever.

Now, these are the things that necessarily must make one wonder how it is that cases can have such a variation, one real bad and alive, and another apparently not much sick, and yet die. This is surely enough to bring the idea into one's head that something has gone radically wrong with one and something miraculous occurred with the other.

Again, we have had patients that lived but a short time after seeing them, and on post-mortem examination we are surprised to find the intestinal tract apparently in good condition, and not a thing, apparently, wrong that should have necessarily destroyed our patient. But this has often been the case, and will be just as long as strictly medicinal treatment is followed in these cases.

While I do not wish to imply the fact that medicine should be discontinued altogether, I do claim that there is entirely too much used, and in many cases mechanical treatment alone should be brought into our cases, and should you see the results obtained by mechanical treatment you then would readily concede that such is the case.

How many of you have been called to see a horse that has been sick from three to six hours. The owner and all neighbors have advised what to do and all kinds of decoctions have been given, but the sufferer has not been relieved, and then you are called. Of course, this is entirely wrong from our side of the case, but it is done, the work is over, and after the administration of a dose or two of medicine the patient goes under; he is over his troubles; no more decoctions needed in his case. But are your troubles over? Not yet. Nine chances to one the fellow will say that after the first dose you gave him he got worse and in a short time died from your treatment. And that is not all your troubles. He will take pains in many instances to advertise that he had So-and-So, and that he really doesn't think he knows a case of colic from kidney trouble. These are the things that hurt us in a way, for we all know from experience that with the laity 49 out of 50 horses are bothered with their water.

Now there are a great many drawbacks with our work, especially in these cases. The patient has been exhausted by thrashing himself around, and usually the enormous amount of stuff not needed that has been poured down his throat has helped to weaken him instead of building him up. At least this is the case in many instances in my practice. And to try to explain things to many of them is only wasting time, for when you are done they will say "Yes," and tell their neighbor how you tried to squeeze

out of it. Now these are a few of the things in my career that have made me lose a good deal of confidence in myself and a good deal more in the way of medicinal treatment in indigestion in the horse.

Now, let us go back just a little and I will try and show why I have lost out on medicine. You have a patient brought to you, or you are called to one, and, as is often the case, the owner has tried everything and you are supposed on arrival to jump down and in 15 or 20 minutes make some radical change in his appearance. Now, the general run of these patients are treated with some form of a physic, something to allay or liquify the supposed gases that are contained in the stomach and intestines. It is usually followed by stimulants of some form—warm water enema and the use of the trocar in either the cæcum or colon. In this manner they are carried along to either a recovery or death. At best one of these cases will hang on from ten to thirty-six hours. There is no stipulated time in them and the veterinarian attending has the pleasure of sitting around in some stall or yard during the better part of the night with the owner telling him how troublesome some of these cases are to control, and if he is able to do that and convince him he is right, all is well and good, but let me say right now, if the patient dies there is a different talk made in that community, and to convince the other party is altogether a different thing.

Now, while I think these cases should always be considered on the safe side to the veterinarian so as not to leave an opening for the non-professional to pick upon him, and all that, I am sure there are a good many graduates who have neglected the opportunity to hold autopsies in such cases and note the actual conditions of the intestinal tract from the stomach on.

The facts are in many instances that the practitioner is led to believe that the main trouble is in the cæcum and colon to start with, for these are the intestines that become greatly distended with gas, and in many instances so much so that the animal is greatly distressed in every way. And from this distention the diagnosis is made, either favorable or unfavorable. For years

the trocar and canula have been called into use in these cases, and there is no doubt but the life of many a good horse has been saved by them, but we have some chance to take by using it, which is, we may have an abscess follow, and in some instances these are very slow in healing. But even with that chance I should not hesitate where I thought my patient would smother down.

Now, I would like to say something that I am sure will not strike everybody as I think, but be that as it will, I really think that in seven out of every ten cases of colic the original seat of trouble is in the stomach, and there alone. The condition I shall speak of as I go along I think will bear out this idea.

To go back and take up a case. I have found that in these cases the stomach contained from 10 to 30 pints of fluid, not gas, but a sloppy, sour mixture, ranging in color almost like that of blood to the contents of an old swill barrel that has soured three or four days. There is in all these cases labored breathing, even though the colon shows no distention by gas, but my theory is this: The soured feed had not yet had time to pass through the small intestines into the colon, for in time they always bloat up or show distention, but the gas producer is the stomach, the stomach being so constructed that it is practically out of the question to come forward, but will pass out through the duodenal opening into the small intestines and from there work back and contaminate the faecal matter of the cæcum and colon, and then the gas is set up at that point.

Now, then, after knowing that the stomach contains this sour fluid and feed, it doesn't look reasonable to me to throw any kind of medicine into this stomach, or that you could expect to get very much action from it, nor do I believe it would to others could they see the condition that really exists in most of these cases. For, as I have said, it is not a gaseous nature we have to do with, but entirely a fluid condition. Consequently we have not a gas to be liquified, as is thought by many, and medicine could hardly form this fluid into a solid substance, so what action would you expect?

The treatment of these cases that has been followed by Dr. Pritchard and myself has been very satisfactory for the past six years, and is continued in these cases at the present time. It consists principally in the use of the stomach tube, a tube gotten up by myself and Stallsmith. This tube is invariably used in these cases as soon as we get them. To better explain our method I will cite just one case in full that I consider remarkable as to treatment and its results:

Brown mare, driven eleven miles into town, was noticed sick on arrival, which was at 10 A. M. The owner and three friends worked with her, giving at intervals opium, ginger, nitre, sodium hypophosphite, oil and syrup and a small dose of aloes. Warm water enema had been given repeatedly and walking exercise. This was followed up until 4 P. M., when she got very uneasy and refused to walk any more. At this time I was called to see her, the owner stating he thought it was too late, but had done all he could outside of calling a veterinarian. On looking the mare over I told the owner that if he could get the mare to the hospital, six blocks away, I would do what I could. She was gotten up and started at once. On arrival she was weaving from side to side and I thought would surely fall, but managed to retain a standing position. The stomach tube was passed at once, and as nearly as I could tell about a pail of fluid returned. The mare broke out in great drops of sweat and was greatly distressed in every way. The tube was pulled out and the mare led into the open air. She was left there just three-quarters of an hour, when she was led back again and the tube passed the second time. This time she was over the worst of her breathing and plenty of time was taken to clean the stomach. How much actual fluid was drawn off I am unable to state, as it was not caught but ran into the sewer on the wash rack. But after the tube was taken out and the mare placed into a box stall the solid feed that had returned with the fluid was shoveled up into an ordinary watering pail, filling it full. Two hours later the mare was standing up, not having been given a dose of any kind of medicine more

than the owner and his friends had given her. The next morning she was in shape to go home and did the eleven miles.

Now, this is only one of a good many cases that have never gotten a drop of any kind of medicine. When any is given it is usually oil and syrup or oil and eucalyptolin or eucalyptolin itself. A favorite of mine is small doses of tincture of nuxvomica repeated every 20 or 30 minutes. We claim that by the use of the tube we remove the cause of our trouble and consequently are done with that.

There are a good many instances where the tube must be used the second time and even the third. The reason for this is that when the stomach has been emptied it leaves a space for the fluids contained in the small intestines to pass back and into the stomach. In this case it is refilled and causes the same distress as before. But through this action of the intestines the distension of the cæcum and colon are relieved. In most all instances it works back through the small intestines and is drawn off by the use of the tube. In this way a great many cases that necessarily would have had to be tapped are passed on and the chances of an abscess are done away with.

I should also like to call your attention to the time usually required to stay with one of these patients. I stated that in many instances with medicinal treatment it required from ten to thirty-six hours. It is a remarkable case that requires more than one to six or seven hours. As a rule any going longer than that will die and on post-mortem examination you will be able to see why relief was not given. There has not been a case at our hospital in twelve months that was stayed with during the whole night that lived. So it not only cuts the expense of medicinal treatment to a minimum, but the long hours of staying with your patient is done away with.

In summing up my paper, I would like to give you the number of cases of so-called colic cared for by myself and partner in the twelve months of 1906. During this twelve months we had 310 cases of so-called colic. Out of these 310 cases just an even 100 had the tube passed on them. The tube was passed 150 times

—some two, three and one five times. Out of this number we had 15 deaths. The post-mortem lesions in every case showed some form of rupture, intussusception, fatty tumors or twists or complete knots.

Out of this number the trocar was used on six cases and invariably from one to nine times. The one tapped one time made a nice recovery; also a nice abscess followed. Out of six tapped four died; these cases were intussusception in every instance at the ileo-cæcal valve.

I have given this list to show the actual times the tube was used and the results that followed. In no instance was there a death without some lesion that to me was incurable, nor has there been in the past three years.

POINTS IN THE DISCUSSION.

Knisely says most cases of colic are in average weight horses and he has seen only one in a mule, generally in hot weather and nearly all in afternoon and evening, very few in the morning. He insists that the ilio-cæcal valve will allow gas and fluids to return. He never passed stomach tube but twice without getting solids, liquids or gas. Injects some water into tube so as to get vacuum.

Dr. S. Stewart spoke of the immense size of stomach in some of these cases. Suggested formalin enough to saturate—capsicum in capsule. This absorbs gas and causes stomach to contract and force gas into intestines.

Dr. Knisely demonstrated the use of the tube at the clinic on the following day.

A WESTERN VETERINARIAN was recently victimized by an alleged news agency of Macon, Ga., which accepted four dollars of his money for a year's subscription to the *Veterinary Journal* (London) and the *Journal of Comparative Medicine and Veterinary Archives* (Philadelphia). As the latter periodical ceased publication in May, 1903, it would hardly be expected that a well-informed American veterinarian would fall to such a proposition in 1907; but to reassure his victim, the agent stated that Dr. Hoskins' journal had resumed publication that week.

ABDOMINAL OPERATIONS ON THE DOG.

BY A. L. WOOD, V. S., HAMPTON, IOWA.

Presented to Meeting of Iowa Veterinary Association, January 28-30, 1907.

This line of work was not chosen as a subject with the object of enlightening veterinarians of this Association. It is only hoped that something may be said which will get us to thinking and doing along this line, should an opportunity present itself.

It is pleasant to break from the usual routine of work which the different seasons bring to us and wander through the different by-ways of nature, plucking a flower here and there, that we may compare them with some older and more common variety.

We, two M. D. brothers and myself, have done a little of this wandering, though did not venture far from the beaten paths of the sciences. During the past six months in the early mornings and when spare time permitted we have performed some thirty operations on the dog, not to see how many, but rather how well we could accomplish them.

All of our work was devoted to the different means of intestinal anastomosis, and the use of a new anæsthetic, scopolamine and morphine.

The dogs received no preparatory treatment for the reason that this class of case usually is one of emergency. Scopolamine, 1:100, gr.j, combined with morphine gr.ss., is injected hypodermically just prior to preparation before operation. By the time instruments, etc., are sterilized and the seat of operation made ready another such dose is given and with a few whiffs from the ether bottle our patient is ready.

If hypodermic injection is given one and a half to two hours before operation usually no general anæsthetic is required. The hypodermic injection produces emesis when stomach is not empty, but no other unpleasant symptoms were noted. The anæsthetic effect of scopolamine and morphine last from 1½ to 2½ hours, followed by no disagreeable symptoms apparently.

The methods used in performing the end-to-end anastomosis were by the use of the Murphy button, the Lembert suture and the Connell method. The average length of time consumed in doing the end-to-end anastomosis by the use of the Murphy button was thirty minutes, the button being passed in one case as early as the fifth day and the longest time the button was retained being seven days.

The length of time required in performing an end-to-end anastomosis by the Connell method is its only disadvantage, it taking about three-quarters of an hour, but by practice on the Connell method this objectionable feature could be largely overcome and the time limit reduced nearly, if not quite, as low as that by the Murphy button. The advantages of the Connell method over that by the use of the Murphy button are: First, less danger of obstruction to the bowel at the point of anastomosis; second, better approximation of the peritoneal surface; and, third, no danger of obstruction to the bowel or other unpleasant symptoms subsequent to the operation by retention of the button, which sometimes occurs in the use of the Murphy button. However, the anastomosis by the use of the Murphy button is by far the preferable operation in the hands of inexperienced operators.

A few points to be remembered in doing intestinal work is, first, to use an uncutting or round needle with silk in all work on the gut itself and the use of catgut or other absorbable material in the mesentery, good approximation of the peritoneal surfaces of the gut; this oversight on our part being the cause of the only fatality we had in our series.

EHRET'S BREWERY, New York, has placed a contract with the Fiss, Doerr & Carroll Horse Company for 150 draught horses, to be delivered during the coming year. They are to be the finest animals of the Percheron breed that can be found, and the price for the lot is to be \$75,000, just \$500 apiece. Mr. Carroll states that the individuals necessary to fill the order are about as scarce as first-class show horses among the lighter breeds, or about one in every 500 Percherons raised.

MODERN VETERINARY METHODS:

BY WALTER J. TAYLOR, D. V. M., ITHACA, N. Y.

IMMUNITY.

EXPLANATION OF ACQUIRED IMMUNITY.

A number of ingenious explanations have been offered for acquired immunity. The only ones that have withstood the criticisms of their objectors are those of Metchnikoff, representing the cellular theory and of Ehrlich, representing the humoral theory. The results from the different lines of investigation indicate that the factors involved in securing immunity against infectious diseases are multiple in number and varied in character. As pointed out by Meltzer it is difficult to explain immunity as being due to any one or even a few anti-bacterial properties of the animal body. In the struggle against bacteria the defense of the body is carried on by the united action of each and every resisting influence. However, a number of theories have been proposed.

1. *The Exhaustion Theory.*—This theory was suggested in 1880 by Pasteur, who thought that the microorganisms growing in the body used up some substance essential to their further existence and died out, leaving the body unsuited for future occupation. This theory, however, could not apply to passive immunity produced by the injection of anti-toxin.

Such a theory, likewise, could not account for the facts seen in Natural Immunity, in which no previous growth of the bacteria could be supposed to occur. This is illustrated in the case of the Algerian race of sheep. These animals are not susceptible to inoculation with anthrax bacteria sufficient to kill ordinary sheep, but will succumb to very large doses of those organisms. It, therefore, is very evident that if in the first case the resistance was due to the absence of nutrition for the organisms the much larger number of organisms in the second case could not possibly find enough to live upon.

2. *The Retention Theory.*—In view of such objections as these, Chauveau brought forward his Retention Theory to explain the phenomenon seen. This theory is based on the fact that the bacteria elaborate some metabolic product that inhibits their future development and the future invasion of the tissues by the same species. This theory is illustrated with the

facts shown in the cultivation of bacteria in artificial media. The bacteria often die apparently from the accumulation of metabolic products long before the nutriment is exhausted. To explain such cases as those of the Algerian sheep by this theory, it would be necessary to suppose the existence of a fixed amount of the opposing substance that would be more than neutralized by the excessive doses of the anthrax bacterium, after which infection occurred. This theory does not explain the facts concerned in Natural Immunity. Pasteur has shown that chickens which are not normally susceptible to the anthrax organism at their normal temperature, become so when that temperature is lowered. His comment upon this fact in regard to the Retention Theory was that it could not be supposed that a preventive substance existed that would disappear under the influence of cold.

3. *The Phagocytosis Theory*.—Metchnikoff has supposed that acquired immunity is brought about by the action of the phagocytes upon the invading organisms. He has shown that in cases of infection with the *Vibrio Metchnikovi*, the phagocytes of unprotected animals do not take up the bacteria, but that in vaccinated animals they do. It appears from all the work that has been done on this subject that the phagocytes are active in proportion to the degree of immunity possessed by the individual. It has not been demonstrated, however, whether they are active because the animal is immune and the bacteria harmless to it, or whether the animal is immune because the phagocytes are destructive to the bacteria.

4. *The Humoral Theory*.—This theory is based on the observation of Buchner, Nutall and others that the blood serum has the power of destroying a certain number of bacteria when they are introduced into it. Nutall showed in addition to this that the bacteriolytic power ceased if the blood was heated to 55° C. It is found, however, that the bacteriolytic serums occur only in cases where there is a high degree of forced immunity, their activity being in proportion to the degree of immunity obtained. An explanation for the action of these serums upon bacteria is given by Ehrlich in his *lateral chain theory*.

EHRLICH'S SIDE-CHAIN THEORY.

I. *Toxic Immunity*.—According to Ehrlich, in every living cell there must exist an active central body and a number of other chemical groups or side-chains. These groups have the greater variety of function, especially those of nutrition and assimilation. This theory teaches that immunity depends upon the presence or

absence of certain substances which he calls receptors or lateral chains which certain of the cells possess. These receptors are concerned in the normal nutrition of the cells and have affinities for various complex albuminous substances. Among these substances are the molecules of the toxin produced by certain bacteria and possibly other poisons.

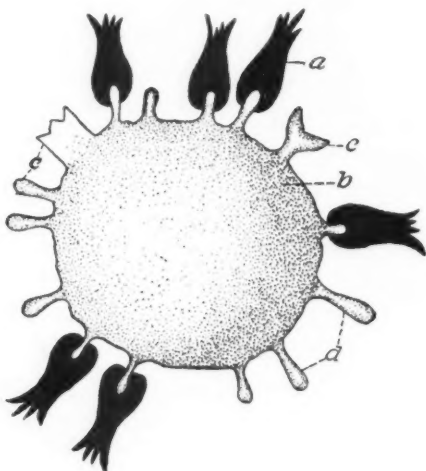


Fig. 1. A cell with different kinds of receptors; *b*, cell; *c* *c* and *d*, different kinds of receptors; *a*, bodies having one haptophore or combining group of atoms. After Ehrlich.

Every toxin has affinities described as haptophorous and toxophorous, that is, every molecule of the toxin (Fig. 1, *a*) is composed of two different groups of atoms, the one the toxophore or poisonous group, the other the haptophore or combining group. The haptophorous group of the toxin combines or unites with the receptors of those cells for which they have a special affinity and the toxophore part of the molecule is enabled to pass through the haptophore group into the cell upon which it acts. In some cases the cells are destroyed and in others, additional receptors seem to be produced because of the stimulation. This is illustrated in Fig. 1. Here is shown a cell to which is attached, through the medium of its receptors, certain toxin molecules for which this cell has an affinity.

If, then, we were to suppose that these toxin molecules were those elaborated by the tetanus organism and the cell one of the cells of the body possessing an affinity for that toxin, the poison-

ous group of this toxin molecule having passed into the cell has stimulated it to throw out additional receptors which in turn have locked up the additional toxin molecules elaborated by the organism of tetanus, the cell having been able to withstand such a number of toxin molecules, is not destroyed and all the toxin being neutralized, the disease is overcome.

In some cases the action of the toxin molecules upon the cell stimulate the cells to throw off free receptors, which may pass out into the blood serum where they act as immune bodies to lock up or neutralize the toxin. When there are more free receptors thrown off than there are toxin molecules present they remain as free receptors in the blood serum. These free receptors are what constitute the active principle of anti-toxin. This is the phenomenon which takes place in the production of anti-toxin, such as diphtheria and tetanus, in the bodies of animals which are utilized for that purpose. This is illustrated in the following figure:

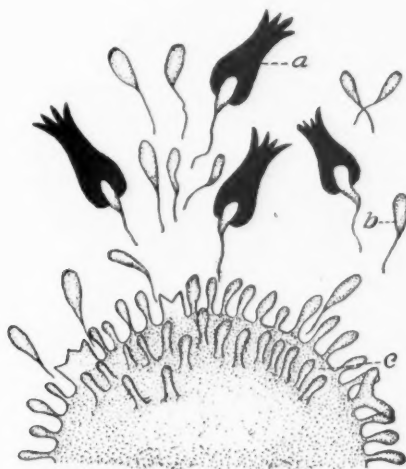


Fig. 2. A cell showing the separation of the receptors or antitoxin and the combination of toxin with free antitoxin; *c*, cell; *b*, free receptors; *a*, toxin. After Ehrlich.

In the use of anti-toxin as a preventive agent, the stimulation of the cell to the production of free receptors is a secondary consideration. The anti-toxin introduced contains the free receptors. Thus in case a dose of tetanus anti-toxin is given before or after an operation to overcome a possible infection with the tetanus organism, these free receptors are already present in the blood of the animal treated. The cells of the animal thus immunized are

therefore not called upon to produce additional receptors or free anti-toxin, that is, the free receptors or anti-toxin introduced lock up or neutralize the toxin produced by the infecting organism.

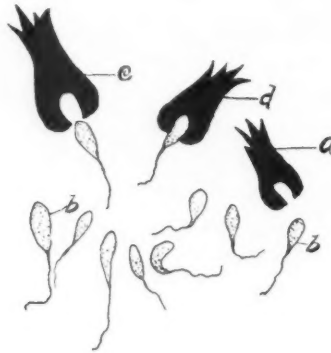


Fig. 3. Drawing to illustrate the neutralization of toxin by free receptors in the form of antitoxin; a, toxin; b, free receptor; c and d show the process of neutralization.

Figure 3 illustrates this point. Here we see these free receptors which have been injected in the form of anti-toxin into the animal tissues becoming attached to certain toxin molecules. These free receptors or anti-toxin are able to lock up or neutralize a certain number of toxin molecules. If, however, more toxin molecules are produced than there has been anti-toxin injected, certain cells of the animal will engage these additional toxin molecules and be stimulated to throw off more receptors as illustrated in Fig. 1.

In the production of *Bacterial Immunity* certain other phenomena take place. This subject will be treated, however, in a subsequent article.

(To be continued.)

A GENTLEMAN is about to establish an extensive milk goat farm on Long Island to produce milk for the New York market. The comparative freedom of these animals from tuberculosis is the cause of his project.

"THE REVIEW IS SO GOOD I can't help telling the boys about it, and then they want me to order it for them."—(Chas. A. McKim, *State Veterinarian of Nebraska*.) Dr. McKim accompanied the above kind expression by several subscriptions for Vol. XXXI.

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

CARCINOMA OF THE STOMACH—IF NOT, WHAT?*

By G. W. CLIFFE, V. S., Upper Sandusky, Ohio.

On a certain afternoon in the middle of August a gentleman brought to my hospital the subject in question, a bay horse, 15.3, seven years old, of the trotting type and breeding. I was asked to examine this horse and place him under treatment.

The history of this case in brief, as related by the owner, is as follows: That this stallion had received average care, had been used in the stud during the season and as a road horse the balance of the time, that the present owner had owned him since a colt and that he had never known him to have been injured or sick at any time in his past life up to the latter part of June, when he began to lose his appetite and fall off in flesh in spite of generous feeding. He had given him remedies prescribed for indigestion without satisfactory results; that the latter part of July he began having slight spasmodic attacks of colic almost daily. As days passed the colic symptoms became more aggravated in connection with frequent attempts at vomition and the horse constantly losing flesh. After each attack he would lie stretched out for about an hour apparently exhausted and at times unable to rise. He also stated that these attacks were sure to follow the introduction of fluid into the oesophagus.

Symptoms.—Pulse 60 and weak, temperature 100.2-5, all visible mucous membranes pale and slightly yellow, extremities warm, respiration increased, breath fetid, appetite gone and any attempt to take fluids was followed by extreme convulsive retching in attempting vomition, which would last ten to fifteen minutes, when he would either fall or throw himself upon the ground, when the paroxysms would continue in connection with such excruciating colic symptoms as groaning, rolling, kicking and striking, the latter symptoms continuing for some minutes after the former had subsided, after which he would lie stretched out limp and apparently exhausted for an hour or more. Upon stag-

*Presented to Meeting of Ohio State V. M. Association, January, 1907.

gering to his feet he looked a picture of abject emaciation. The faeces very small, light colored, fetid and covered with mucous.

After the examination the owner asked me if I had concluded what the trouble really was and if I thought that I could do anything for him. I said to him that I had made up my mind there was just one thing that should be done—which I believed to be an act of humanity—and that was to have this horse destroyed; that as far as I was concerned I could offer no relief, not being satisfied in my own mind as to the true nature of his difficulty. He insisted that I keep this horse until the following day, when he would call for him. On the following day I gave this horse a hypodermic of six grains of morphine, waited thirty minutes, offered him some water, which he attempted to drink, but was immediately followed by symptoms as before described. Later in the day the owner called for the horse, received no satisfaction and took the horse home.

On the following day (Monday) this horse was placed under treatment by another veterinarian, who continued to treat him for about two weeks, when the owner was advised it would be an act of charity to destroy him.

A day was set for the destruction of this horse and I was notified to be present. Being interested I was on hand at the appointed time. The only change that I could notice in the animal was that he had still reduced somewhat in flesh and that the symptoms before described were more aggravated.

The animal was cast and secured and the carotid severed. It was noticed as the blood flowed from the artery that it failed to form the usual recognized clot, which was the only striking condition of the blood on post-mortem.

As soon as death had ensued we proceeded to lay open, beginning at the pharynx. In brief, the post-mortem revealed but little else except the exhibit before you, of which the œsophagus presented a thickened condition anterior to the cardiac orifice 16 inches, the base of the pouch beginning at the orifice extending up the œsophagus was 10 inches and held by actual measurement 77 ounces and presented somewhat the appearance of a miniature stomach. The œsophagus showed a rupture of its muscular walls for 10 inches, beginning at the orifice, leaving intact only the mucous membrane. The orifice was impervious to fluids to the extent that the dilated pouch filled with water and the œsophagus ligated the fluid could not be forced through the orifice by pressure on the pouch. This thickened condition at the time of the

post-mortem varied in extent from an inch and a half to two inches and occupied the orifice well into the stomach. The stomach otherwise presented no abnormal condition.

The lungs, the liver, the spleen, the pancreas—in fact, all the different organs—disclosed no abnormal appearance except the exhibit before you and a shriveled condition of the small intestines, which resembled more those of a sheep in size. The stomach being entirely empty and the only fluid anterior to the duodenum was retained in the dilatation or pouch noticed on the œsophagus and occupying a position in the thoracic cavity. The small intestines being entirely empty, except a heavy, yellowish-brown, fetid mucous, the cæcum contained about two quarts of fluid. The floating colon contained a few small yellowish pellets.

The history given you conforms to the data taken at the time of post-mortem.

Gentlemen, you have this case before you. I have endeavored to present the facts surrounding the case and the symptoms present as fairly as I believe it possible. Being interested in the matter and having an inquisitive disposition to satisfy, I have brought this subject before this select body that from the discussion that usually follows on such an occasion some very important facts and intelligent information may be derived therefrom and that before the conclusion of this topic you will have fully decided if this be a true case of carcimona of the stomach or merely an abnormal condition resulting from an injury, as a choke, kick or bruise sustained while pressing against the trying pole during the stud season.

CRYPTOGAMIC POISONING.*

By HAL C. SIMPSON, V. S., Denison, Iowa.

About October 20 last I began to meet some very unusual cases with typical actions, history and results. Will give a report of one case:

Bay gelding, coming three, weight about 1,400 pounds, temperature 103.2°, pulse 86, respiration 38, mucous membranes injected and very dry, stiffness of all four limbs, no lack of control, bathed in perspiration, particularly around elbows, stifles and inside of hind legs. History of no feces nor urine passed since

* Reported to Meeting of Iowa Veterinary Association, January, 28-30, 1907.

first noticed affected; trembling of caput muscles, slight colicky pains, usually of short duration. During the pains would lie down and as a rule stretch out full length. Balance of time would pick at hay and would eat some grain and drink slightly more than usual amount of water. Extremities cold.

Made rectal examination and withdrew a large quantity of very dark fæces; pressure on bladder caused expulsion of the largest amount of urine I ever saw come from a horse, dark colored—bloody, in fact—and of alkaline reaction and some odor.

The pulse, temperature and respirations were not as high in all cases and some were not as stiff as others and few would refuse one kind of food but eat ravenously of others. Some ate or drank nothing.

These horses had been running all summer on bottom pastures, through which a creek ran; not the same one; some overflowed possibly in spring; mostly blue grass; no unusual weeds that owners knew of. Horses had been pastured in all pastures for years previous, and in a few cases other horses were in the same pastures and showed no signs of the disease. Weather at the time was and had been for, say, a week previous damp, cloudy and quite chilly for the season of the year. One or two nights there was a very heavy frost, and a number of times there was a heavy damp fog over the bottoms all night.

Some cases were down and unable to get up even with help. In a few cases the bowels were quite loose. All were young except one, an aged mare nursing a colt and with foal again. I have since heard of two mares that had slight attacks and recovered that were with foal. Both aborted some time after.

There was a great deal of this condition in my county about this time, and also farther down the Boyer River. I treated about twelve cases myself, and I know of possibly twenty others that were treated, and I also know of a number, say about ten head, that died before anything could be done. I heard of one man who lost six head, another four head, one who lost three and several who had two die.

In the way of treatment I tried on different cases a number of different remedies. A physic usually, on some eserine and pilocarpine, arecoline hydrobromate, oil, aloes. Those cases that were down received nux vomica and strong liniments down their spine. Others required sedatives. Potassium iodide \mathfrak{z} ij, fl. ex. digitalis mxxx, every two hours, gave, possibly, the best results.

MESENTERIC HERNIA IN FILLY—REMOVAL BY AMPUTATION—RECOVERY.

By A. J. TREMAN, V. S., Lake City, Iowa.

A brown filly, coming two, owned by a druggist, had been cared for at a farm during the winter. The care had consisted of what the animal could forage and no shelter but an open shed and strawstack. This naturally resulted in a very poor physical condition and a coat of thick long hair, in which there were a large number of lice.

March 21, 1906, she ran into a fence and caused a large swelling in the left flank. March 31 the writer was requested to go out and examine the colt. We found a fluctuating, non-circumscribed tumor about 14 inches long and 8 inches wide, in the centre of which was a firm substance closely adherent to the abdominal wall, but no hernial opening could be discovered. An exploratory opening revealed a large amount of serum and some mesentery. As the animal could not be taken care of where she was and was quite weak, it was decided to move her to town for treatment.

April 7 there was a rise of temperature and symptoms of infection and it was decided to operate at once. The seat of operation was shaved and disinfected, the animal cast and anæsthetized. The incision exposed a large mass of mesentery firmly adherent to the abdominal wall and to the sides of the hernial opening, which was about one and one-half inches in diameter. The mass was loosened and ligated as closely into the hernial opening as possible and removed. It weighed nearly two pounds and was considerably infected. The hernial opening was completely closed by the adherent mesentery and no attempt was made to suture it. The incision was left partly open for drainage and required daily antiseptic irrigation for some time, but the patient made an uneventful recovery, and by August 1st one would scarcely notice scar or swelling.

In our study of the mesentery we find that in human surgery quite large portions are occasionally removed without unfavorable results. And we know that in laparotomies of smaller animals portions are often removed. Also, that that process of the great omentum which sometimes in foetal life becomes attached to the testia and may be included in an inguinal or scrotal hernia, or may not show itself until it descends through the opening after castration, is successfully removed after ligating. In these cases

the contained blood vessels are usually small. In the recited case the blood vessels were very large and indicated it was a loop of that part directly attaching to the small intestines. It would seem that we may remove considerable portions of any part of the mesentery when necessary.

A DENTIGEROUS CYST CONTAINING 104 TEETH.*

By A. J. TREMAN, V. S., Lake City, Iowa

February 1, 1906, a sorrel colt, coming two years old, was brought for treatment. Examination revealed a bony enlargement about one inch anterior to the roots of the first premolar. It had been noticed but a short time before. As there was nothing to be found but simply the hard enlargement, and it was too far anterior for the teeth, the owner was advised that probably it had been caused by a bruise and that a blister might aid absorption. Occasional reports indicated that the tumor was gradually enlarging. May 31 the animal was cast and a trephine opening made in the centre of the tumor. There appeared to be a thickening of the bone, and after trephining about three-quarters of an inch in depth it was decided we were dealing with an osteoma and to leave it alone. The opening healed rapidly, except a small tract as large as a good-sized knitting needle. July 31 the owner reported that the tumor was still growing and beginning to interfere with respiration in that nostril. Examination revealed a small fistulous tract leading from the trephine opening downward and into the oral cavity just anterior to the first premolar. Here was found a necrotic area a little more than one inch long and one-half inch wide. The animal was cast and this necrotic tissue removed with a curette, revealing the crown of a molar tooth about one inch above. The original trephine opening was now enlarged so as to permit the removal of the tooth. Around this were found 104 supernumerary teeth of varying sizes, closely packed together and joined by a fleshy pulp. The cyst cavity was quite large, but under daily antiseptic irrigation soon filled with granulations and the external opening healed, although a considerable portion of the enlargement yet remains.

The walls of the cyst were formed by the two plates of the anterior portion of the supermaxillary bone, these being pushed apart, more to the exterior than to the interior. The large tooth lay immediately beneath the outer plate and was penetrated by the

* Reported to Meeting of Iowa Veterinary Association, January 28-30, 1907.

trephine during the first operation. The cavity extended upwards to the inferior extremity of the inferior maxillary sinus and close to the roots of the first temporary molar, showing that the large tooth in the cyst was the misplaced permanent molar.

RAPID RECOVERIES FROM PARTURIENT PARESIS.

By J. FERGUS DONNELLY, St. John's, Newfoundland.

I was called by a farmer at 5 P. M. one day about the middle of June this year to see a cow which had been down since 7 A. M. and was unable to rise. The owner informed me that she had calved three days previously. On arriving at the barn I found a Jersey cow lying on the ground with her head thrown back and in a comatose condition. There were quite a number of farmers present, who said that the cow was paralyzed. I diagnosed the case as parturient paresis and told them that I would have her up and eating in an hour. Naturally they laughed at me and said I would have to put her in slings.

I washed the udder with a 5 per cent. solution of carbolic acid and inflated it with sterilized air and massaged it for five minutes. I then gave a hypodermic injection of strychnine (gr.j) and applied ammoniacal liniment from the occipital bone to the first coccygeal vertebra, which I rubbed in hard for fifteen minutes. I then placed the tail straight out on the ground and rubbed it with my foot, which seemed to drive a shock through the spinal cord. After a minute or so the cow made a bellow and jumped to her feet and began to eat some hay that was in front of her. From the time I started this treatment until she was up and eating was exactly forty-seven minutes.

I have treated another case in this manner with the same success, having no after-trouble with either.

PRECOCITY IN A FOAL.

By R. A. STOUTE, D. V. S., Barbados, West Indies.

A small mare pony and foal were landed here from one of the neighboring islands in June. The foal had four temporary incisors, the corner ones not appearing. The owner says the foal was born September 5, 1906.

After being put together in the stable the foal covered his mother four times during the day.

SURGICAL ITEMS.

BY DRs. LOUIS A. AND EDWARD MERILLAT, CHICAGO, ILL.

AN UNUSUAL SEQUEL OF TIBIAL NEUROTOMY— OPERATION AND RECOVERY.

It is only after having read Dr. Peters' translation of Schmidt's observations on the various neurotomies that the case we are about to relate was attributed with certainty to tibial neurotomy. Although we had suspicions in that direction we had never seen or heard of a parallel case to lend any confirmation of the suspicions until an identical sequel of this neurotomy was observed and reported by Schmidt through Dr. Peters to the readers of the *AMERICAN VETERINARY REVIEW*. The sequel referred to is a freakish stringhalt of the unnerved leg, manifested, not by the excessive flexion or ordinary stringhalt, but by excessive abduction. The leg transcribes a complete half circle at each step. The posterior stride begins by a straight outward jerky fling of the leg, which then, in trailing forward, completes a half circle, landing a little short of the track of the fore foot. The horse is practically disabled; trotting is almost impossible; and the gait is so freakish as to render the affected horse unfit to expose to the public in harness.

Our case occurred about twelve months after the operation of tibial neurotomy had been performed to relieve a lameness due to chronic sessamoiditis. The subject is a trappy gaited cob that had been submitted to peroneal tenotomy some two years before, evidently to cure a real stringhalt. This latter operation was successful, as no evidence of stringhalt had ever been observed during our examination of the horse for the lameness in the sessamoids. In fact, we had no knowledge that the tenotomy had been performed until the leg was shaved preparatory to an operation to relieve the "abduction stringhalt" that followed the neurotomy. The scar on the previous operation and the absence of the peroneous tendon showed that the tenotomy had been performed and the absence of any excessive flexion between the time of our first examination and the appearance of the abduction showed that the first operation had been successful. The relations if any that existed between these two aberrations of the gait are of course impossible to determine in view of the little that is known about the etiology of stringhalts.

This horse was purchased for use as a runabout horse in a private stable during February, 1905, after having passed the scrutiny of a prominent veterinarian. During March he became slightly lame with symptoms simulating spavin lameness. For this he was first blistered and then fired, with no better results than a constant increase in the severity of the claudication. During the summer months of 1905 he was kept at pasture, being still too lame for service. In the fall, the lameness having shown no sign of abating, the owner sold him in disgust and for a trivial price. During October, 1905, he was presented to us for treatment by the new owner. At this time the diagnosis of chronic sessamoiditis was easily made from the visible changes in the fetlock and the pain provoked by flexing that articulation. Firing and a rest during October and November palliated the lameness, but the cure was not permanent. The lameness returned after a few days of ordinary work in light harness. On December 17th of the same year he was submitted to tibial neurotomy as a last resort, with absolutely satisfactory results. The lameness was promptly cured and the horse worked perfectly from January, 1906, until February, 1907, or about fourteen months in all, when rather suddenly the symptoms of the excessive abduction began to appear. The evolution of this aberration was exceedingly rapid; within two weeks after the first appearance of the symptoms the horse was useless. At first a neuroma at the proximal end of the cut nerve was thought to be responsible for this unusual movement of the leg, and after this had been removed with negative results it was decided to perform peroneal tenotomy, but while preparing for the operation, as above mentioned, it was discovered that the operation had already been performed, evidently some years previously, and before the horse fell into the hands of either of the two owners mentioned in this report.

Operation and Recovery.—While our patient was still upon the table where he had been placed for peroneal tenotomy it was decided to try to modify the abduction by dividing the tendon of the gluteus externus just above the trochanter minor. The region was shaved, thoroughly disinfected and cocaineized subcutaneously. An incision was made through the skin, fascia and muscles so as to expose the trochanter in its center; then the tendons attached to the upper border of the trochanter were divided with a probe-pointed bistoury. The skin and fascia were closed with interrupted sutures with the exception of a small drainage orifice at the distal commissure. Upon leaving the

table there were no modifications of the symptoms; in fact the spectators remarked laughingly that the gait was even worse than before. The wound healed slowly during the succeeding four weeks, at the end of which time the horse was put to work almost cured. At this writing, some three months after the wound was healed, no trace of the aberration remains.

* * *

MUSCULAR ATROPHY FOLLOWING AZOTURIA.

In the atrophy of the crural muscles supervening the acute stages of azoturia the veterinary practitioner has to deal with a very obstinate condition that is always certain to test the patience of the owner, who during the long period of the disability of his horse is equally certain to be given a variety of opinions from various sources as to the nature of the disease and its final outcome, all of which is not to be wondered at after the horse has crippled about week after week and month after month without showing any tendency to improve. In these cases it is the duty of the practitioner to submit a favorable prognosis, but to remain non-committal as to the duration of the disability. Sometimes four months, sometimes twelve months will pass before the wasted muscles are restored to their normal condition. The atrophy always continues long after the practitioner has exhausted all of his ammunition. Liniments, blisters, cautery, setons, electricity, strychnine and all other expedients are only so many useless, ineffective treatments, and after all of these have been tried in hopes of stimulating the nutrition of the wasted region, the owner's patience will also be found to have been sorely tried unless previously impressed with the fact that a long time will be required to effect a cure. In cities where the cost of keeping horses is great this sequel of azoturia is equivalent to the loss of the horse unless the value is exceptional. In fact, it often happens that after a practitioner has received the congratulations of his client for having "cured" a bad case of azoturia, he is told after a few months of ineffective treatment of the atrophy, that it would have been better if the horse had been killed in the first place.

As to its pathology, it is reasonable to suppose that the wasting is of nervous origin. Central? Perhaps. Peripheral? Well, probably. Who knows? The behavior of the process is the typical behavior of atrophy due to paralysis of motor nerves. The suspended innervation destroys the contractility and wasting

rapidly follows, and although the seat of the nervous lesion is not known, the long time that always elapses before the muscles begin to regenerate, is evidence that it is located some considerable distance from the periphery. The loss of volume, as in the case of other analogous atrophies, is due to cellular loss. The cells diminish in size and in number, but the intercellular substance remains unchanged, ready to serve as support for the cells when they regenerate under the stimulus of the restored nerve supply. There are no degenerate changes; the normal chemical constitution of the cells is maintained. In short, the wasting of the cruralis is a *true atrophy due to suspended innervation*.

The treatment should be limited to good healthful exercise in the paddock, at pasture or even at light work, with plenty of nutritious food. External applications and internal medicine intended to hasten the process are disappointments. The former may be resorted to when the muscles begin to regenerate spontaneously, with the object of stimulating the restorative process, but as long as the nerves remain inactive external irritants are useless. As the restoration of the lost volume is subordinate to the slow regeneration of the paralyzed nerves and as the latter is not materially influenced by either internal or external medication, it is plain that all treatment except exercise is useless.

The prognosis is always favorable, although four, five, six or even twelve months may elapse before the full volume of the region has been restored. There seem to be no exceptions to this favorable prognosis. Every case will finally recover, despite the very discouraging persistency of the atrophy in some instances. It is therefore the practitioner's duty to recommend an economical subsistence for his crippled patient so that the cost of the "treatment" will not exceed its health valuation.

Add to the veterinarian's fee of, say \$20, the cost of keeping a horse in the country for ten months at \$10, brings the total expense of treatment to \$120, which is much less than the price of the kind of horses that usually contract the disease. A Chicago veterinarian who also owns a farm a short distance from the city, has for a number of years made it a practice to purchase as many of these crippled horses as possible, and as they were always purchased for a ridiculously low price when the owners, in spite of advice to the contrary, were convinced of their incurability, the traffic has yielded a handsome profit.

This favorable prognosis, in rare instances, ends in disappointment from the development of more or less serious lesions of the

articulations of the opposite leg from the burden of supporting the entire weight of the hind quarters, and sometimes the affected leg develops a ringbone from the constant rolling motion to which the pastern is submitted. These unfavorable terminations, although not numerous, should be kept in mind in predicting the outcome of the condition in exceptionally heavy horses.

UPHOLDING THE NEBRASKA VETERINARY LAW.—The following sensible opinion and ruling by a judge of the District Court of Omaha is not only of interest and value to the profession at large, but is a decided victory to the veterinarians of Nebraska. Dr. Ramacciotti had Van Gordon arrested last year for using the title V. S., and he was found guilty by a jury. He applied to the same court for a new trial, and the following clipping from the Omaha *World-Herald* of July 14 shows the final ending of the case: "Explaining his reasons with a unique interpretation of the law governing the treatment of dumb brutes, Judge Troup of the criminal division of district court has decided that the statute restricting the practice of veterinary doctors is good and has fined A. L. Van Gordon \$25 and costs for its violation. The constitutionality of the law was attacked. The law does not forbid the practice of veterinary medicine and surgery without a state license, but it forbids the right to use the title of veterinary without this license. Judge Troup declared that the law can be upheld on the theory that that portion of the dumb brute creation which has been enslaved and made the servant of man, has abstract rights in law as an animal independent of the special provisions which forbid cruelty to him, because that shocks the human sensibilities. He held that the animal is entitled to his compensation just as a human laborer and that that compensation is food, drink and humane treatment. For this reason the legislature has a right to enact statutes protecting dumb animals from quack veterinarians, just as it enacts statutes protecting human beings from quack physicians, that it can require that the person who sets himself up as able to treat the ailments of animals must be shown to have a fair degree of skill as determined by a state examination."

"WOULD NOT DO WITHOUT THE REVIEW for \$10 a year. Somebody else's experiences are sometimes worth more than references to text-books—at least, to a very busy man."—(*John Pierce, V. S., Okmulgee, Ind. Ter.*)

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

PERINEAL HERNIA FOLLOWING CASTRATION FOR ENLARGED PROSTATE GLAND [*George P. Male, M. R. C. V. S.*].—An old Aberdeen terrier, very great pet, has suffered much with enlargement of the prostate, difficulty in passing urine, great pain and straining on defecation, straddling gait, pain on manipulations, etc. Growing worse, he was castrated and seemed to get much relief for some few months, when the bad symptoms returned. He was unable to urinate and seemed in great distress. Attempts were made to pass a very small catheter, but without success. At that time a large swelling was noticed at the side and below the root of the tail. Was it the bladder that had been displaced? Such proved to be the case, as on performing laparotomy it was found impossible to return it to its place until the swelling had been emptied by puncture with a fine trocar made in the perineal region. The bladder remained in position only for a while, and as soon as it began to fill it returned to its abnormal position. An attempt was made to secure with stitches to the peritoneum, but these would not hold. The animal was allowed to live some little time, having his bladder punctured as required, but finally he was destroyed. At the post-mortem the bladder was found immediately under the skin in the perineal region, lying freely into a cutaneous sac. The inner surface of the bladder showed small red spots of granulation tissue, the only marks of the several punctures that had been made.—(*Veterinary Record.*)

ACUTE DIABETES INSIPIDUS [*John Connachie*].—Aged cart gelding. No previous attack, although a little unthrifty every spring. One day he showed an extraordinary thirst, and while at work could not pass a watering trough without stopping to have a drink, no matter how severely punished he was to prevent it. He then would simply plunge his head into the water and drink so much that his bladder could not retain the excess of urine, which was passed almost continuously when walking. Symptoms of the next day: Extremely tucked up and empty

look, considerable difficulty in breathing, mucous membranes blanched and pulse atonic, temperature 105° F.—in short, looking like an animal in one of the stages of hæmorrhage, as seen when being bled to death. No appetite, and breath very foul. Treatment: Water withheld, good thick gruel and milk instead. Iodine, sulphate of iron and gentian were prescribed. Feeding with hay of best quality. After a week animal began to improve and recovery followed with some tincture of iron in limited quantity of water.—(*Veterinary Record*.)

CYSTIC CALCULUS [*Livesey and Gray*].—At a meeting of the Central Veterinary Medical Association the former showed a cystic calculus taken from the bladder of a terrier bitch and also a remarkable specimen taken from a Lhasa terrier weighing about 15 pounds. The contents of the bladder were in two glass dishes, the calculi consisting of five large stones fitting and adapting themselves to the shape of the bladder. There were also several small stones and a good deal of sand. In both cases the condition had been diagnosed at least two years previous and no serious trouble had been observed. No operation had been done, and one day death relieved the poor sufferer. It was an evidence that large stones could remain in the bladder for two years or more (the author had known of one case that lasted five years) without causing any ill effect. The second presentation was made by Mr. Gray. A specimen of a cystic calculus removed from a bitch by the suprapubic operation. The calculus could be felt through the abdominal walls and was the size of a fowl's egg.—(*Veterinary Record*.)

HYPERTROPHIED HEART [*Captain Rudd*].—At the Scottish Metropolitan Veterinary Medical Society, the author presented the heart of a troop horse which was hypertrophied and weighed immediately after removal *nineteen and three-quarter pounds*. The pericardium was covered with false membranes and contained about one quart of fluid. The pulmonary valves showed very large vegetations, with one mass of growth being partially calcified and extending into the cavity of the artery. The other valves were slightly thickened. The animal had been suffering with rheumatic fever and had been under treatment for eight weeks.—(*Veterinary Record*.)

INTERESTING CASE OF INTERNAL RUPTURE [*Charles Rose, A. V. C.*].—A charger is taken with colic. He has spasms of pains somewhat peculiar. The forelegs are straightened and he has spasms of the intercostal muscles gradually coming on.

The lips are drawn back and squeals are emitted, indicative of severe pains. This condition lasts about one minute and then passes off, to recur after about five minutes. This condition was kept up until death. The diagnosis was reserved. Anodynes prescribed. Post-mortem: Abdomen contained several gallons of blood. Very extensive rupture of the diaphragm muscle on the left side and a smaller one on the right. There was also rupture of the pleura of one lung, although these organs were free from disease.—(*Veterinary Journal*.)

RENAL CALCULI IN A HORSE [*Prof. G. H. Wooldridge, F. R. C. V. S.*].—A specimen taken at a knacker's yard from a horse destroyed on account of incurable chronic lameness. There was no history of anything having been suspected wrong with his kidneys. One of these organs was quite normal. The other looked as if it had been petrified. Almost the entire kidney structure was gone. The whole weight of that kidney was 3 pounds 12 ounces. The calculi weighed 2 pounds 7½ ounces. One of the calculi, the largest, weighed 2 pounds 4 ounces. There were a very large number of smaller ones. They were made of carbonate and phosphate of calcium, without ammonium or magnesium and no uric acid.—(*Veterinary Journal*.)

A CASE OF GASTROTOMY [*R. J. Foreman, M. R. C. V. S.*].—A seven-months-old Scotch terrier swallowed a rubber cork. After ten days, continuous vomiting set in, and in two days more the condition was alarming. The cork was easily felt through the abdominal walls. Well prepared for the operation, an incision was made, the abdomen opened and the cork well made out in the stomach. At that moment breathing stopped, but was re-established after five minutes of application of the usual procedure in similar cases. The stomach was drawn out and the cork removed. A second time artificial respiration, ammonia vapor and cold effusions on the head had to be resorted to as respiration had again stopped. As these means did not seem to do any good, after ten minutes three minims of Scheele's hydrocyanic acid were injected into the pleura and almost immediately started gasping. Breathing, with a little help, returned. Operation was concluded and 25 days later the dog was eating meat and bones. One day he licked his dressing, tore the wound and it had to be stitched. The same day he swallowed a wool dressing of his wound and passed it a day or two later. He improved and was ready to go home, when he helped himself to some blister ointment of biniodide of mercury. He got all right

again, when three days after he took plentifully of some hoof oil. Result, vomiting and diarrhoea. Finally went home.—[*Veterinary Journal*.]

TWISTED BOWEL, ACCOMPANIED BY CALCULI [*A. S. Hodgkins and Son, M. R. C. V. S.*].—Bay van gelding is taken during the night with colic. He is covered with perspiration, paws continually, tries to pass faeces and has most haggard expression of countenance. Temperature is up to 104° . Physic ball and chloral hydrate are given. When rectal examination is made a calculus is detected and extracted with little manipulations. In so doing the floor of the rectum was ruptured. The stone weighed 1 pound and 7 ounces. The horse died the next day. The post-mortem revealed a twisted bowel and two other calculi wedged in the small intestine. The weight of the three stones was 3 pounds 10 ounces.—(*Veterinary Journal*.)

FRENCH REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

FEMORO-PATELLAR ARTHRITIS [*A. Barrier*].—As the result of a kick, a femoro-patellar arthritis develops and resists the following treatments: Blistering applications and injections of Van Swieten, relative immobilization of the leg with hobbles, introduction of nitrate of silver pencils in the fistulous tracts, that of Egyptiacum ointment, injections of peroxide of hydrogen, of chloride of zinc, packing of the fistula with tannin, tannoform, injections of perchloride of iron, of camphorated phenol, of tincture of iodine and finally draining of the fistula and injections of muriate of cocaine, 1 in 20. All these treatments are without results. Finally, as the blue of methylene has been recommended in the treatment of some complicated wounds the author resorts to this mode of treatment for this case, now in his hands for seventy-five days. Injections of blue of methylene are substituted for those of cocaine, which were used at that moment. From this day and in a short time improvement was noticed. The synovial secretion diminished and soon stopped. The drain tube was removed, the fistula healed and recovery rapidly took place.—(*Rec. hygie. et méde. vétéri. militaires; Revue Générale*.)

VOLVULUS OF THE FLOATING COLON AND OF THE RECTUM [*J. Dignac*].—The horse "Cavalier," aged 13 years, has colics.

Taken to the hospital, his manifestations suggest the idea of urinary trouble and rectal examination is made. The hand feels downwards and to the right an intestinal loop, which at some centimeters of the anus turns to the left and then forward in a straight line. In this last portion the intestine is much dilated. There is volvulus of the floating colon without knot, as defecation is normal. Reduction is impossible and laparotomy is too risky, as the case is probably of old standing. The animal is kept under observation. After a few days he gets worse, and on rectal examination a rupture of the rectum is detected about 30 centimeters from the anus. The horse died a few days later. Post-mortem: Nothing important, except in the abdomen. Folded colon is covered with alimentary substances, cavity contains about 15 liters of rosy liquid, peritoneum is dark red color, the whole intestines are inflamed, floating colon filled with faecal matters, at 20 centimeters from the pelvic curvature there is a transversal laceration. At the entrance of the pelvis there is a large pouch filled with faeces. The rectum opens in it at one end. At the other forward end is the small colon bent to the right and backwards, attaching itself to the outside of the pouch and then resuming its normal direction forward to the cavity of the abdomen. The pelvic curvature is adherent to the anterior extremity of the pouch. This peculiar lesion has not yet been recorded, at least as far as the author knows.—(*Revue Vétérinaire*.)

SHOCK CEREBRAL—FRACTURE OF THE SPHENOID AND OF THE TUBEROUS PORTION OF THE TEMPORAL BONE—POST-MORTEM [*M. Chanier*].—An English thoroughbred, while being broken to harness, reared, fell backwards and remained on the ground. Seen a few minutes after, he is found lying on the right side, with accelerated breathing, heart beating rapidly, pulse weak. The left eye is dull. A small stream of blood oozes from the nostrils. This last, with the history of the case, suggests the diagnosis of fracture of the cranium. Cold water is applied on the poll. After a few minutes the horse succeeds in assuming the position of a sphinx sitting, which he keeps for about 20 minutes. Then blood is observed running from the right ear, probably due to fracture of the temporal. The right eye is somewhat congested and sleepy. The ocular globe is constantly pivoting in its cavity. The condition of the pupil cannot be seen in the right, but in the left eye it is dilated. Soon paralysis of the right side is marked. After another hour the animal attempts to get up, but fails, but succeeds 20 minutes later. Assisted and supported

in standing, he begins to move and pushes forward. In moving he keeps his fore legs far apart and advances only with short small steps. There is also vertigo, as the animal fears falling. He is with great difficulty brought to a stall, where he at once falls down. Taking careful consideration of all the symptoms, a diagnosis is made of cerebral shock, with hæmorrhage in the posterior part of the encephalon and fracture of the sphenoid bone. At the autopsy all the organs were found healthy except the head. Besides the lesions resulting from bruises and partial hæmorrhages, there was found a fracture of the superior part of the sphenoid, involving the basilar process of the occipital with a split extending from the right carotid notch to the subsphenoidal canal, orbital hiatus and the right temporal bone. The tuberos portion of this bone was crushed and the subuliform process and hyoid bone were separated from each other. The brain was congested, but otherwise healthy. Small hæmorrhages existed in the lateral ventricles, the cerebellum and the bulb.—(*Recueil de Médecine Vétérinaire*.)

NON-HEALING WOUND OF THE FLANK, CAUSED BY A DEAD FŒTUS IN THE UTERUS OF A CAT [*Blet, Student*].—A she cat carries on the left hypochondriac region a wound from which escapes a blackish pus. It is the result of a bite inflicted by a dog a month and a half ago. The cat at that time was pregnant. For a month the wound did not seem to give any trouble. It progressed toward cicatrization, until now it is a fistulous sore which discharges a very offensive pus. A probe introduced in it comes in contact with a crepitating mass with some little hard substances. A forceps is introduced and pulled out fragments of skin, hairs and bones. The difficulty was due to the presence of a dead fœtus. The tract was opened, the cavity emptied of its contents, thoroughly disinfected and recovery followed. The uterine horn torn at the time the bite was inflicted, had contracted adherence with the edges of the injured abdominal walls and prevented the escape of all pus or septic substances into the abdomen. For that reason the cat escaped peritonitis.—(*Recueil de Médecine Vétérinaire*.)

THE KANSAS CITY VETERINARY COLLEGE is expending twenty-five thousand dollars in the erection and equipment of an annex to its present large college building. The growth of the college is typical and in keeping with the city in which it is located.

BELGIAN REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

SIMULTANEOUS CASE OF THROMBOSIS OF THE POSTERIOR AORTA, GREAT MESENTERIC AND OF THE VENA PORTA IN A HORSE—CONSIDERATIONS UPON THE PATHOLOGICAL PHYSIOLOGY OF THE THROMBOSIS ON ARTERIAL AND VENOUS BLOOD-VESSELS OF THE ABDOMEN [*Professor Gratia*].—A three-year-old filly has shown symptoms of lameness of the hind legs, intermittent in its character. At first her general condition was good, but it soon changed, and gradually the animal lost flesh and was in a state of excessive marasmus. At the post-mortem the following lesions were found: An obliterating thrombosis of the aorta by an enormous clot, hard, partly adherent and extending into the external and internal iliacs; thrombosis of the renal arteries; two verminous aneurisms of the right and anterior trunks of the great mesentery, which is also obliterated by clots; a thrombosis of the trunk of the hepatic artery extending as far as the origin of the right gastro-epiploic artery, and, finally, a thrombosis of the portal vein involving the trunk itself, but also the afferent and the efferent branches of this vessel. The liver was congested and weighed 9 kilogrammes 850 grammes. The spleen was three times its normal size and weighed 3 kilogrammes 80 grammes. In looking over the literature of these troubles in veterinary works the author has found a number of similar cases, and among them those of Colin, of Alfort. In a donkey that had died in a very emaciated condition after having exhibited for a long time abdominal and cerebral symptoms, he found a suppurative thrombosis of the portal vein. In an old mare which had had dull colics and diarrhoea there were thrombosis of the arteries and veins of the colon and cæcum and of the portal vein. In a horse of dissection was found a sclerous thrombo-phlebitis of the portal vein. Professor Gratia then studies the three categories of those lesions and concludes: (1) To the etiological point of view most of the observations show that pylethrombosis is not necessarily related to pylephlebitis; (2) that in two cases only the inflammation of the vein has been the cause of the formation of the clot—in the first it was a thrombo-phlebitis of suppurative nature, in the second the thrombo-phlebitis was sclerotic. Besides, to the ordinary causes of the disease in man may be added for the horse the venous stasis by deficiency of the *vis à*

tergo resulting from a primitive thrombosis of the mesenteric arteries.—(*Annals of Belgium.*)

MULTIPLE ABSCESSSES OF THE SPLEEN IN A FILLY [*A. Van den Eeckhout*].—The animal was two years old and presented to the clinic to be treated for an umbilical hernia. She has always been a poor eater and is in a very emaciated condition. The hernia has been treated before and now there is a relapse. The ring is sufficiently large to allow the introduction of the four fingers of the hand brought together in a cone. As the animal was taken with a slight cold the operation had to be postponed for a few days and then was performed by the application of a clamp after opening of the hernial sac. There were no adhesences and the operation was very simple. The temperature was 38.5° C. The next day it rose to 39.2° , and with this elevation appeared a series of vague symptoms which lasted until death. Temperature varied between 39.3° and 39.5° in the morning and 39.6° or 39.9° in the evening. Appetite is always poor; she eats a little grass and refuses hay or oats. There is great thirst and polyuria. The mucous membranes are very pale. Nothing on percussion nor auscultation. Rectal examination reveals nothing. Tuberculin test is negative. The wound of the operation goes on well toward cicatrization. Another minute examination reveals to the left hypochondriac region an abnormal dullness on percussion. This extends on a surface bound in front by a line which from the fifteenth rib runs obliquely backwards and downwards toward the summit of the olecranon. This abnormal dullness helps to locate the cause of the trouble, but its nature remains unknown. The animal grows worse and finally dies in a cachectic condition. Post-mortem: Sero-bloody fluid in the abdomen. Peritoneum shows numerous minute bloody vegetations. It is somewhat thickened. The hernial ring is closed. The spleen is very large, weighing 9 kilogrammes 750 grammes. It measures 21 centimeters at the base and 102 centimeters on its posterior border. It has a rupture involving its whole thickness and extends from the anterior angle of the base to the middle of the posterior border. The splenic pulp is normal in some parts and in the others the seat of numerous abscesses, some of which are connected and others isolated. They resemble tuberculosis collections, but they are not tuberculous. The microscopic examination of the pus has revealed numerous streptococci, but no tuberculous bacilli. There were no tuberculous lesions in any part of the body.—(*Annales de Bruxelles.*)

INTRARACHIDIAN TUMOR IN A DOG [*Mr. Poulin*].—This dog is two and a half years old, very active. He has had the habit to run after all the dogs he meets in the streets. He is also very intelligent, and has been taught to make a somersault, raising himself on his forepaws and turning over, falling on his back. Lately he moans, and while his general condition is good he is constipated and has an abdomen very sensitive to pressure. He seems also less willing to run. It is difficult for him to go up and down stairs. He now and then has pains and he refuses to make his exercises or does it imperfectly. He also has subjective or imaginary pains, as when he sees some one approach and touch him kindly he screams more or less. On careful examination a band of complete anæsthesia on the right and a little back of the last rib is detected and also a marked hyperæsthesia in the entire posterior half of the body, including the hind legs. The dog has difficulty in sitting, to go up and down stairs; he is stiff in walking. There is polakisuria and the examination of the urine reveals nothing abnormal. The diagnosis is uncertain, but the presence of an intra-rachidian exostosis is suspected, and notwithstanding the severity of the prognosis a treatment is prescribed of iodide of potassium. After twenty days a report came that the dog was all well—a rather surprising report—followed ten days later by another that he had died with cerebral congestion. Post-mortem: The rachidian canal being opened, at one centimeter back of the last rib was found on the floor of the canal not an exostosis, but a tumor as big as a bean, elongated, united to the superior common vertebral ligament and somewhat pedunculated. This growth is lodged partly in a depression of the vertebræ, a little on one side of the median line. It is compact and firm in its anterior portion and softer and more vascular in the posterior. It contains a little mass of caseum in which no tuberculous bacilli could be found. It was only a small ordinary abscess encysted, due to an effort or to a laceration when the little fellow had been performing his violent exercises.—(*Annale de Bruxelles.*)

A FREAK CALF.—Dr. Nelson N. Lefler, Batavia, N. Y., forwarded to the REVIEW two photos of a calf, eight weeks old, which was born without eyes or tail. The animal is perfect in every other way. The eyelids appear normal, but the palpebral surfaces are united, and there is no eyeball. The photos, being proofs, had faded until unsuited for reproduction.

ARMY VETERINARY DEPARTMENT.

WAR DEPARTMENT RULING AS TO PERSONAL EQUIPMENT, UNIFORM AND TACTICAL POSITION OF THE VETERINARIAN.

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF STAFF }
WASHINGTON, June 13, 1907.

Memorandum for the Assistant Secretary of War:

Subject: Pertaining to the personal equipment, uniform and tactical position of veterinarians.

On May 13, 1907, Veterinarian Walter Fraser, Thirteenth Cavalry, requested a decision on certain matters affecting veterinarians, which was forwarded to the War Department by the post and department commanders. The subjects have been carefully considered and report and recommendations are submitted herewith.

The following questions were asked by Veterinarian Fraser:

- "1. What is the equipment for veterinarians in the field?
2. Whether or not veterinarians are authorized to carry a sabre or what weapons of defense, as they are not protected by the Geneva Cross, so must be a combatant.
3. Whether veterinarians are authorized to wear the U. S. on their collars, as they belong to the regular organization and are not contract or civilian employees.
4. What is the position of a regimental veterinarian with a command on a road march or at ceremonies?"

The Quartermaster-General, to whom the paper was referred, remarked that the letters U. S. should be omitted from the uniform of veterinarians and the Chief of Ordnance is opposed to veterinarians wearing the sabre, but sees no objection to their carrying whatever firearms they desire during active service.

Before discussing the particular points presented it will be well to inquire into the status of a veterinarian under the law and regulations. He is specifically provided by law in the organization of regiments of cavalry and field artillery, and therefore constitutes a part of the Army, but as the pay and allowances of a second lieutenant, mounted, only are conferred upon him and as there is no specific grant of military rank he

cannot be regarded as a commissioned officer of the Army. He is appointed in writing by the Secretary of War for an indefinite period and is discharged by order of the Secretary of War. He is required to take an oath, the same as is required of commissioned officers, and is required to perform all the duties belonging to his appointment in conformity with the rules and regulations of the service. He has no regular rank, but is borne on regimental returns below commissioned officers. He is paid out of the money appropriated to be disbursed and accounted for by the Pay Department as pay of the Army, and it has been held by the Comptroller of the Treasury that he is entitled to longevity increase after each five years of service. Army Regulations, fixing grades of rank (paragraph 9), place a veterinarian below a second lieutenant and above a cadet. The Judge-Advocate-General of the Army has repeatedly expressed the opinion that a veterinarian is not competent to sit as a member of courts-martial or to perform any of the duties which are expressly required by law to be performed by commissioned officers, but as his status is assimilated to that of a commissioned officer he is eligible for detail as member of boards of survey or councils of administration and may, when no commissioned officer is available, serve as exchange officer or post treasurer and may witness payment to enlisted men. It has also been held that veterinarians not being commissioned officers, are not entitled to the benefits of the retired list.

From the foregoing statement of facts it is clear that a veterinarian is neither a commissioned officer nor an enlisted man, but is what the law designates him, a *veterinarian*, without a specific grant of rank, but with pay and allowances of a second lieutenant, mounted. His status assimilates to that of a commissioned officer and he enjoys many of the privileges of one, but he lacks the primary essential, appointment by the President and confirmation by the Senate.

We can now come to the specific points presented :

1. What is the equipment for veterinarians in the field?

As the status of a veterinarian is assimilated to that of a commissioned officer, his equipment for field service should conform generally to that of commissioned officers for like service.

2. Whether or not veterinarians are authorized to carry a sabre or what weapons of defense, as they are not protected by the Geneva Cross, so must be a combatant.

On February 2, 1904, Veterinarian W. R. Grutsman, Fifteenth Cavalry, was informed by the Adjutant-General of the Army that side arms are not prescribed for veterinarians. This decision disposes of the question as to whether or not veterinarians are authorized to carry a sabre and conforms to the recommendation of the Chief of Ordnance and is in accord with the position a veterinarian occupies. It is true that he does not fall within the limitations prescribed by the Geneva convention and should not be deprived of the privilege of carrying fire arms in actual service. While it is not deemed necessary to prescribe either a revolver or a rifle or both as part of his equipment for field service, yet no objection can be entertained to his so equipping himself.

3. Whether veterinarians are authorized to wear the U. S. on their collars, as they belong to the regular organization and are not contract or civilian employees.

This matter was discussed at length in War Department General Staff report dated August 16, 1906, which stated, in part:

"Paragraph 63, Uniform Regulations, does not allow veterinarians to wear the U. S. on their collars, and it would appear that this inhibition is intentional. * * * The idea seems to have been to limit the U. S. to the officers and men of the military establishment proper. Veterinarians are neither commissioned officers nor enlisted men. They are provided for a part of the regular establishment, as is also the nurse corps (female), but they are not on the same basis as commissioned officers or enlisted men."

As the foregoing was approved by the Acting Secretary of War on August 17, 1906, it appears to dispose of the question raised as to wearing the letters U. S. on the collar.

4. What is the position of regimental veterinarian with a command on a road march or at ceremonies?

While a veterinarian is a part of an organized regiment of cavalry and field artillery he is not a part of the tactical organization, and therefore during drills, parades, inspections or other ceremonies no place is prescribed for him in the Drill Regulations, nor does it appear necessary to prescribe one. His duties are special and technical and are in no way related to the evolution of troops either for offense or for defense. Ordinarily he does not appear, nor should he be required to do so. At inspections he very properly should be at the stables or wherever sick

animals are being cared for. If a veterinary hospital exists, that would naturally be his headquarters.

On the march no place is prescribed for him. If there is a considerable number of invalid animals he would ordinarily accompany them, but his position with a marching command would be determined by the exigencies of the particular service for the day. Therefore the position of a veterinarian at ceremonies, if it is desired that he appear, should be fixed by the commanding officer, otherwise he does not appear except at inspection, when his place is at the veterinary hospital or at the stables. During a march his position should be fixed by the commanding officer.

It is recommended that reply be made as above to the questions propounded. Very respectfully,

(Signed) J. T. KERR,

*Colonel, General Staff,
Acting Chief of Staff.*

A true copy: P. D. LOCHRIDGE, Captain and Adjutant, 13th Cavalry.

Approved: (Sgd.) ROBERT SHAW OLIVER,

Acting Secretary of War.

* * *

ARMY PERSONALS.

DR. GEO. A. HANVEY, Veterinarian U. S. Army, Ft. Riley, Kansas, visited in Kansas City July 11.

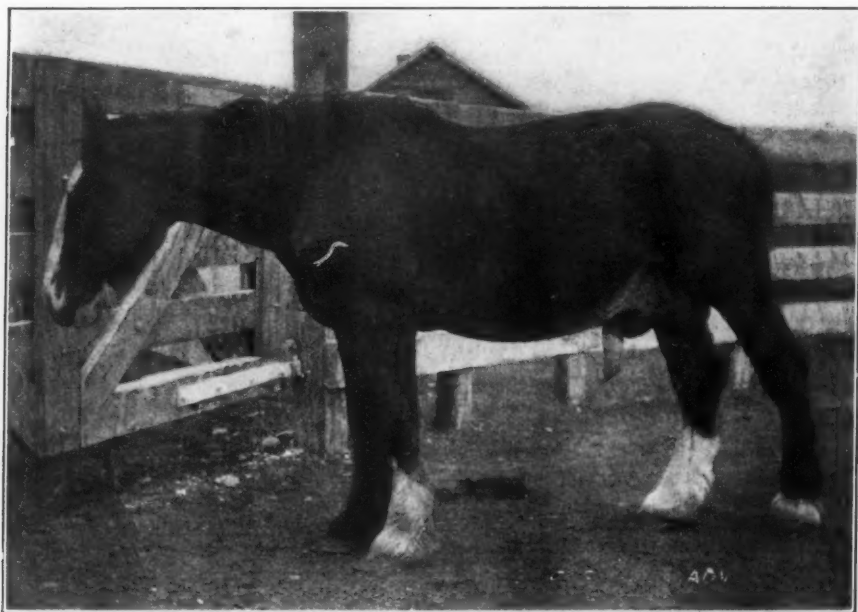
DR. J. H. OESTERHAUS, Veterinarian 7th U. S. Cavalry, is *en route* from the Philippines and will be stationed at Fort Riley, Kansas. The regiment is scheduled to arrive in August.

DR. L. E. WILLYOUNG, U. S. Army, Fort Sill, Oklahoma, has been designated as the official representative of the Army at the Kansas City meeting of the A. V. M. A. Dr. Willyoung has recently been transferred from Fort Snelling, Minn., to Fort Sill.

DR. OLOF SCHWARZKOPF, 3d U. S. Cavalry, stationed at Camp Stotsenburg, Philippines, was a victim of physical breakdown from overwork and the tropical heat in April and was transferred to Camp John Hay, Benquet, for recuperation and temporary duty. This camp is in the mountains, at a 6,000 foot elevation, and a letter from the Doctor, dated May 31, gives the good news that he is rapidly rounding to under the influence of the pure, cool air and abstinence from the deadening effects of routine work. Mrs. Schwarzkopf was with him and he reported her as being in good health.

MALADIE DU COIT AT LETHBRIDGE, CANADA.

Some few years ago considerable excitement was caused among veterinarians and horse breeders in Canada by the reported diagnosis by Inspector Burnett, Veterinarian of the R. N. W. M. P., of a case of dourine, maladie du-coit, or equine syphilis, near Lethbridge, Alta. Later researches found other horses affected, and these were, under the orders of Veterinary Director-General Rutherford, quarantined. Several United States veter-



A MALE PATIENT AT THE LETHBRIDGE QUARANTINE STATION.

inarians and pathologists visited the quarantine station several miles out of Lethbridge to confirm or dispute the diagnosis. So far as we know the diagnosis was not confirmed by the gentlemen. The disease was traced to Montana, from which State, by the way, Canada has received several seedings with glanders and other equally undesirable animal diseases. One United States scientist said the disease was not dourine, as the *Trypanosoma equiperdum*, found in typical cases, could not seemingly be demonstrated. The Veterinary Director-General established a labo-

ratory at the quarantine station, a ranch of 1,800 acres of fenced land, and after a lot of careful painstaking investigation Dr. A. E. Watson, of the Health of Animals Branch, found the parasite in material taken from a vesicle in the vagina of one of the affected mares. Confirmation of the find was had by the inoculation of some of the material into a nine-months old foal, which developed plaques, from which specimens of the parasite were taken. Thus the identity of the disease was thoroughly established and a basis found on which to elaborate methods by which the disease may be stamped out. Staff Sergt. Gallivan, V. S.,



A FEMALE PATIENT AFFECTED WITH DOURINE.

was associated with Dr. Watson in the work. Examinations of the blood had failed to show the parasites, and it occurred to Dr. Watson that possibly toxins had been generated in sufficient quantities to account for the absence of the parasites which Dr. Lingard, an investigator in British India, stated were to be found in true cases. The Alberta pathologist found the trypanosome ten days after the foal had developed a plaque (a raised spot in the skin, as if a fifty-cent piece had been pushed underneath) at

the site of inoculation. In typical cases seen, the genitals were affected, large swellings and depigmentation (absence of the coloring matter, black spots becoming white), loss of control of the limbs, especially behind, cracking of the joints and a general air of ill health. It is a great honor for the Health of Animals Branch, the Veterinary Director-General and Dr. Watson to be the first on the American continent to demonstrate the presence



VETERINARY PATHOLOGISTS AT THE LETHBRIDGE QUARANTINE STATION. DRs. A. L. MOORE AND A. E. WATSON.

of the parasite in cases of the disease, and is further evidence that the Canadian public are getting value for appropriations made to that branch of the public service. There are many knotty problems to be solved in animal diseases, and we wish the Branch similar success when it tackles them.—(*A. G. Hopkins, V. S., in Farmers' Advocate, Winnipeg, Manitoba.*)

"I AM MORE THAN PLEASED WITH THE REVIEW, and could not get along without it."—(*John F. Smith, D. V. S., Benson, Minn.*)

THE MILK SUPPLY OF WASHINGTON, D. C.

RECOMMENDATIONS OF THE CONFERENCE APPOINTED BY THE DISTRICT COMMISSIONERS.

After months of deliberation, the milk conference appointed by the District Commissioners to frame regulations providing for pure milk, to be embodied in a law, has submitted its report, and it is now up to the Commissioners to refer the matter to Congress, if approved by them.

The report was adopted at a meeting held in the District building yesterday afternoon, Surgeon-General Wyman presiding. The conference has held many meetings, and through committees has obtained much information bearing upon the relation between typhoid fever and other diseases and the milk supply, and if the recommendations become a law there will be no chance that diseased or unclean milk can be sold in the District.

That the price of milk will go up also seems probable, because of the increased expense that will be entailed by the dairymen in producing perfectly clean and pure milk.

Chief among the recommendations is that inspectors, in the proportion of one to each 100 dairy farms, be appointed, at a salary of from \$1,600 to \$1,800 per year and traveling expenses, all to be under a chief inspector, at a salary of \$2,000, and at least half the inspectors to be veterinarians. All of each inspector's time must be given to this work.

WANT ADEQUATE LABORATORY.

In connection with the present Health Department it is recommended that there be provided adequate laboratory facilities to make analyses of samples and that there be established a pasteurizing plant where milk may be pasteurized under the immediate supervision of the Health Department.

When bad or unclean milk is found, the health officer will be empowered to revoke the license of the dealer handling it, and inspectors will have the right to revoke for forty-eight hours, pending the carrying of the case to the health board, any license when the owner is suspected of violating the law.

For the purposes of the law any place where milk is sold will be considered a dairy, and the practice of grocers and bakers handling milk is advised against, except in such cases where the milk is sold in the sealed packages in which it is received.

CLEAN MILK ASSURED.

Every pint of milk sold that does not come from tuberculin-inspected and tagged cattle must be pasteurized, and no cattle may be added to a tested herd until the new cows also have been inspected and tagged. Further, no license may be issued until the prospective dairyman has had all his herd properly inspected and they have been found perfect.

The water supply of all dairy farms, too, will have to stand a rigid inspection, and all dairies must be properly equipped to cleanse and sterilize all receptacles used in the transportation or storing of milk.

Cans on wagons will be sealed and may not be opened except by an inspector, who, in collecting samples, will get one for the vendor, in his presence, and one for the Health Department.. All milk found to be unfit for human food will be denatured with some odorous substance, such as coal oil, or with some coloring matter.

MAY ADVERTISE GOOD DAIRIES.

The health officer will be empowered to advertise such dairies as conform to all regulations, and the owners will be given a certificate showing they are producing what will be termed "certified milk."

Another feature that finds approbation among the physicians is a recommendation that such a laboratory as is desired for other tests be so fitted as to be able to produce modified milk of a certain chemical composition in conformance with physicians' prescriptions.

The matter of refrigerator car service is treated in the report, it being set forth that it is desirable that all trains carrying milk be equipped with refrigerator cars from May 1 to December 1. In this connection letters were read from various railways, setting forth the fact that because of the short distance most milk is carried such equipment, in addition to cooling rooms at stations, would be an expense that would in the end fall on the consumer.

Concerning the matter of education on the subject of pure milk, it is advised that the matter be taken up in the public schools and all pupils instructed as to the necessity for pure milk and told how to distinguish that which is not fit for use.

A series of popular articles, stripped of technical verbiage, explaining how to procure good milk, written by authorities on the subject, for distribution is also recommended.

The Commissioners will go over the report and give it careful attention, as it is quite likely it will be presented in its present shape to the next session of Congress for enactment into law.—(*Washington Herald*, June 27, 1907.)

ANIMAL HUSBANDRY AT THE UNIVERSITY OF PENNSYLVANIA.—Dr. Carl W. Gay, Associate Professor of Animal Husbandry at the University of Ohio, has been appointed Professor of Animal Husbandry at the University of Pennsylvania. Dr. Gay is a graduate of the New York State Veterinary College and also of the Agricultural College of Ames, Iowa, where for a time he taught the practice of veterinary medicine. Dr. Gay has done a great deal of work in general animal husbandry and especially in horse-breeding. His appointment at the University of Pennsylvania will make it possible for that institution to arrange to give a course of instruction in animal husbandry and in "animal engineering" equal to the best instruction in these branches furnished in the agricultural colleges that have heretofore almost monopolized this field. Dr. Pearson has, for a long time, advocated strong courses in these branches for veterinary students. It is his belief that veterinarians should be at least as well trained in animal husbandry as are graduates of agricultural colleges. Veterinarians are frequently called upon for advice in this field and it is necessary that they shall be well equipped. Dr. Gay will also administer the new horse breeding and stallion law recently enacted by the Legislature of Pennsylvania.

THE HUMANE EQUINE OPERATING TABLE, manufactured by the Bradwood Manufacturing Company, of New Haven, Conn., is gradually working its way into the veterinary hospitals throughout the country. Within the past six months the following veterinarians have installed one of the heavy type in their operating rooms: Charles B. Banks, M. D. V., Memphis, Tenn.; Prof. M. H. McKillip, Chicago, Ill.; Dr. George T. Crowley, New Britain, Conn.; Dr. Herman H. Weinberg, Philadelphia, Pa.; and Dr. Andrew Darling, St. Louis, Mo.

MICHIGAN'S NEW LAW.

HOUSE ENROLLED ACT NO. 484.

An act to protect the title and to regulate the practice of veterinary medicine and surgery in all its various branches in the State of Michigan; providing for a State Veterinary Board and prescribing its duties; regulating existing practitioners; governing under graduates and reciprocity with other States and provinces; prescribing penalties for its violation and repealing all inconsistent acts.

The People of the State of Michigan enact:

Section 1. It shall be unlawful for any person to engage or attempt to engage in the practice of veterinary medicine or surgery in any of its various branches, unless he shall comply with the provisions of this act and be duly registered by the State Veterinary Board in the manner hereinafter provided.

Section 2. There shall be a State Veterinary Board, consisting of three members, who shall be residents of this State and citizens of the United States, and regularly registered veterinary graduates, no two of whom shall be graduates of the same college, and who shall have been in the practice of their profession at least three years prior to their appointment. The members of the State Veterinary Board, appointed under authority of act one hundred ninety-one of the Public Acts of eighteen hundred ninety-nine shall constitute the State Veterinary Board. The provisions of this act shall in nowise interfere with the tenure of office of the members of the State Veterinary Board heretofore appointed under authority of such act. Accordingly as vacancies shall occur on said Board, it shall be the duty of the Governor, on or before April first, annually, to appoint a veterinarian, having the qualifications herein prescribed, and who shall hold office for three years or until his successor is appointed and has qualified.

Section 3. The members of such Board shall meet at Lansing on the third Tuesday in August of each year. They shall organize by electing a president, secretary and treasurer. The treasurer shall give bonds in such amount as the said Board shall determine. It shall be the duty of the said Board to make an annual report to the Governor at the close of each fiscal year, which report shall contain a complete statement and record of all of the official acts of said Board, together with a statement of all moneys received and the manner of their disbursement. It shall be the duty of the said Board, from time to time, during each year, to provide and furnish to its secretary a list of the regular

colleges having a curriculum of at least three years and of at least three sessions of six months each, having the authority to confer the degree of doctor of veterinary medicine, doctor of veterinary science, or doctor of comparative medicine or veterinary surgeon. It shall be the duty of the secretary of said Board to issue to each applicant, graduates of said colleges, a temporary permit to practice until the next regular meeting of the Board, and to keep on file, in the office of the Secretary of State, his permanent address.

Section 4. Any person who has practiced veterinary medicine or surgery in their various branches in this State for five years prior to the passage of this act shall be eligible to become registered as an existing practitioner, and entitled to receive a certificate of registration from the State Board as such: Provided, That any such person shall, on or before the first day of January, nineteen hundred eight, file with the Secretary of State Veterinary Board an affidavit, showing that he has been continuously so engaged and shall also present letters of recommendation from ten reputable freeholders and stock raisers of this State, who shall have employed him, showing him to be qualified to practice veterinary medicine or surgery as above set forth. All those registered under this clause shall not be entitled to use any college degree or any abbreviation thereof. All veterinarians now registered under authority of act one hundred ninety-one of Public Acts of eighteen hundred ninety-nine, or entitled to be registered under said act, when registered shall be recognized and known as the Regular Veterinarians. It shall be unlawful for any person except a Regular Veterinarian under the provisions of this act, to use any college degree, or their abbreviations in connection with his name, or profession which might lead the public to believe that he has had a college course of veterinary training: Provided, That nothing in this act shall prevent any person from treating his own animal or assisting his neighbor.

Section 5. From and after January first, nineteen hundred eight, it shall be unlawful for any person to practice or attempt to practice veterinary medicine or surgery in any of its various branches, unless he shall be duly registered by the State Veterinary Board. No person shall be registered by the State Veterinary Board as a veterinarian or veterinary surgeon, until he shall have furnished satisfactory proof of his identity and that he is the lawful and regular possessor of a diploma from a regular veterinary college or veterinary department of a State institu-

tion of learning or college of medicine having a curriculum of at least three sessions of six months each, and requiring personal attendance of its pupils, and that said diploma was issued by such school or college direct to him: Provided, That the provisions of this section shall not be applicable to those persons who are duly registered veterinary surgeons at the time this act takes effect.

Section 6. It shall be unlawful for any person in this State to perform the following named surgical operations upon animals without first administering either local or general anæsthesia: The emasculation of hermaphrodites, the emasculation of mares and female dogs, the operation of fistulous wethers and pollevis, lithotomy and all forms of neurectomy, the Cæsarean operation, the operation for umbilical and scrotal hernia and the operation for wind broken horses called laryngio-crycorectomy: Provided, That the provisions of this section shall not be governing or apply to dehorning cattle, ordinary animal castration, accidental or minor surgery.

Section 7. It shall be the duty of the secretary of the State Veterinary Board to keep a book for the purpose of registering veterinary surgeons of this State. The said secretary shall collect a fee of five dollars for each person registered under the provisions of this act, except that all those persons coming within the provisions of section four shall be registered for, and the secretary shall collect but three dollars. The fees received by the said secretary shall be turned over by him at each session to the treasurer of said Board, who shall immediately, at the close of each session, pay same into the State Treasury to be covered into the general fund. It shall be the duty of the State Veterinary Board to purchase a supply of certificates of registration and to furnish a certificate to each applicant furnishing satisfactory proofs of his identity and qualifications, and upon payment of the fee, in the manner herein provided, which certificate must be conspicuously displayed in his office and shall entitle such applicant to practice veterinary medicine and surgery in all its various branches.

Section 8. The members of the State Veterinary Board shall not be entitled to receive any salary, fee, or compensation for their services as such members, except that the secretary shall receive such compensation as the Board shall determine, not to exceed fifty dollars per annum. The expenses of such members actually and necessarily incurred in the performance of official duties shall

be paid by the State Treasurer upon the warrant of the Auditor-General out of any money in the general fund not otherwise appropriated.

Section 9. Any student having attended a recognized veterinary college for six months may, upon the presentation of a certificate of attendance, bearing the college seal, be allowed to practice in the office of and under the instructions of any registered veterinary surgeon in this State to whom he may apply during one summer vacation, or until October following the date of his certificate of attendance and no longer, nor elsewhere as an under graduate.

Section 10. Michigan shall reciprocate with other States and provinces in an interstate recognition and exchange of licenses upon a basis of equality of educational standard and mutual recognition, which standard shall not be lower than required by the provisions of this act.

Section 11. Veterinarians living near the border line of Michigan, in an adjoining State or province, and wishing to practice in this State, shall, before doing so, apply to and receive from the State Veterinary Board a certificate of registration. The State Veterinary Board shall grant such license and issue a certificate upon the payment of the prescribed fees, provided the applicant's educational attainment shall conform to the requirements of the provisions of this act, and the said State or province shall grant a like reciprocity to veterinarians of this State.

Section 12. Any person violating any of the provisions of this act shall be deemed guilty of a misdemeanor, and shall, upon conviction, be punished for the first offense by a fine of not less than ten nor more than fifty dollars, and for each subsequent offense shall be punished by a fine of not less than twenty-five dollars nor more than one hundred dollars or be confined in the county jail for not less than thirty nor more than ninety days, or by both such fine and imprisonment in the discretion of the court.

Section 13. Complaints for a violation of this act shall be made to the prosecuting attorney or humane agent of the county in which the offense is committed and the method of procedure shall be the same as in other criminal cases.

Section 14. All acts or parts of acts inconsistent with or contravening the provisions of this act are hereby repealed.

This act is ordered to take immediate effect.

VETERINARY DEPARTMENT OF MICHIGAN AGRICULTURAL COLLEGE.

Through the untiring efforts of the Legislative Committee of the Michigan State Veterinary Medical Association, the following bill was enacted into law at the recent session of the Legislature, and while the college authorities are not limited as to the course to be given, the high character of the Michigan institution is a sufficient guarantee that it will be a department which will rank with the best of such schools:

HOUSE ENROLLED ACT NO. 213.

An act to provide for the establishment of a department of veterinary science at the Michigan Agricultural College.

The People of the State of Michigan enact:

Section 1. The State Board of Agriculture is hereby authorized and empowered to establish a department at the Michigan Agricultural College, to be known as the department of veterinary science.

Section 2. The said State Board of Agriculture may provide suitable accommodations for class and demonstrating rooms; may appoint such professors of veterinary science and such tutors, demonstrators and other instructors as may from time to time be necessary; may furnish all necessary apparatus and appliances for the study of veterinary science; may prescribe and regulate the course of study; may make such rules and regulations as may be necessary, and may grant to each student satisfactorily completing the described course of study a diploma and confer upon each student the degree of "Doctor of Veterinary Science."

GRADUATES OF THE NEW YORK STATE VETERINARY COLLEGE at the June examinations have gone to their new work in many directions. Dr. D. K. Eastman has engaged as assistant to Dr. Lester H. Howard, of Boston; Dr. Cassius Way associates himself with the practice of Dr. George H. Berns, of Brooklyn, while Dr. Walter E. Frink assumes an assistantship with Dr. W. J. McKinney, also of Brooklyn. Several are on the eligible list for the Philippine service, and others for the Bureau of Animal Industry.

CORRESPONDENCE.

IS THE VETERINARY PROFESSION DEPENDENT UPON THE HORSE?

UTICA, N. Y., May 25, 1907.

Editors American Veterinary Review:

DEAR SIRs:—The above title suggests a serious crisis that our profession is facing, due to the advanced methods of transportation.

The question of to-day is how to do a thing or go a distance the quickest; anything so as to get results in a hurry.

This is an age of keen competition and it's the individual or firm that "delivers the goods" the quickest that gets the business.

Business extends not only across the continent, but across the oceans, and firms and even small individual business concerns think little of importing or exporting goods.

Suburban homes and the getting out of the heat, strife and expense of city living is booming the suburban towns and therefore yearly—yes, daily—increasing the demand for quick transportation to and from.

Trolley and steam roads are extending all over the country, opening up secluded spots and directly connecting the suburban and rural districts with the cities. Consequently the city commercial houses cater for this trade, extend their delivery service and necessarily demand methods of quick and cheap transportation for their goods.

The wealthy wish to travel overland and also to enjoy the advantage of rapid transport, so as to cover a vast territory quickly and at minimum cost.

The general public are obliged to travel considerable distances to get to their places of employment, and in order to live in any kind of enjoyment of fresh air and home-like surroundings must go far beyond the hustle and bustle of the center of a large city.

The products of our farms are being shipped almost inconceivable distances and held in cold storage until distributed to the consumer, consequently a demand for very quick transportation.

The professional man jumps on a train or car and goes ten, fifteen or twenty miles to make a call and thinks nothing of it,

and does it as quickly now as a few years ago it would take to go four or five miles, consequently an ever increasing demand for quick transportation.

Then, also, we must consider that this is a speed-crazed age, the good old-fashioned methods of giving satisfaction and quality is giving way to imitation and fake, with haste in selling and delivering. In years gone by, and to some extent in my time, first we had the horse solely as a means of covering long distances. Distances that looked long in those days would be looked upon now as extremely insignificant journeys. Then came steam, next the trolley, then the individual's car, or "special train," the automobile. The advent of the steam road created a cry that the horse was doomed to partial extinction, as the stage lines would be abolished, and at the present they are practically all gone. Then came the trolley car or the electrically propelled train, and then another still louder yell went up that now surely the horse was a goner, as all horse cars would be done away with, that the trolley would cover such territories, as it has, consequently the breeding of horses would cease to be a profitable branch of agriculture. Then next came the improved velocipede, or the results of its wonderful evolution into the bicycle, and the bicycle industry developed to such magnitude that many places sprung up all over the country. The output for years was far below the demand, and when they could be supplied in sufficient numbers all the world was awheel—father, mother, sister, brother and all the rest of the family were the proud possessors of wheels. The trolley, steam road, horse and all means of transport were neglected for the fascinating wheel, particularly the horse for pleasure. Even commercially different forms of man-propelled vehicles were put on the market. Then came a gradual decline of the entire business until the bicycle has taken a useful place in the commercial world.

During this bicycle craze the yell went up again that the horse was to be replaced, especially in the cities. Then the advent of the self-propelled vehicle, or automobile. When this invention was perfected the old cry, only in a more aggravated form, was heard, and this time it was more universal. Even the horsemen to a certain extent conceded that at last the horse had met with a mechanical competitor that would cause his complete replacement or displacement. The press took up the subject and papers that had always been firm adherents of the horse went back on him and considered his cause lost.

Now, to what extent does the veterinary profession depend upon the horse? In my opinion, all depends on him, our chief patient. The very life of the profession, in my opinion, depends upon him, for as the very foundation, its literature, its colleges and financial sustenance depended and depends at present upon this animal.

Practitioners may become enthusiastic upon scientific questions, meat and milk inspection, the eradication of contagious and infectious diseases, upon improvement of medical treatment, the writing of text-books, the improvement of the milk supply, the publication of periodicals of veterinary interest and various other interesting branches of veterinary science, still they mostly all depend upon the horse to get the financial necessity to live and devote time and money to such questions. Retired veterinarians who take up special lines have generally acquired their means of living through the horse, the colleges depend for clinical material and hospital teaching upon him, in the teaching of anatomy, physiology, *materia medica*, etc., the horse is used as the type and the diseases of other animals are rather comparative. I mentioned that the very foundation of veterinary science depended or had its origin through interest in this animal. To illustrate this statement I will cite such facts as follow: First, take a definition of veterinary science. Veterinary science comprises a knowledge of the conformation and structure of all the domesticated animals, especially the horse, their physiology and special, racial and individual characteristics, their human management and utilization, their protection from, and medical and surgical treatment in, the diseases and injuries to which they are exposed, their amelioration and improvement, their relation to the human family with regard to communicable disorders, and the supply of food and other products, more particularly those derived from them for the use of mankind. From the third century onward veterinary science had a literature of its own and regular practitioners, especially in the service of the Roman armies. Apsyrus, of Bethynia, in 322 B. C. enjoyed a high and well-known reputation. He wrote on the contagious nature of many diseases. He also studied and described accidents of the horse. Then came Herrocles, Apsyrus' successor, especially on hygiene and treatment of horses. Publius Vegetus is said to have been more of a horse dealer than a veterinary practitioner. He introduced several operations on the horse, such as the removal of calculi from the bladder through the rectum, couching

for cataract, extirpation of certain glands and several serious operations on the horse's foot. Toward the close of the mediæval period the subject of veterinary art was much cultivated in the cavalry schools of Italy. Spain also had an organized system of good practitioners. In the fifteenth century among the Celts the healer of horse diseases and the shoer were held in high esteem and the court farriers were very well considered. The earliest known English works were on the horse, as "Properties and Medcynes for a Horse, Mascal of Oxen, Horses, Sheeps, Hogges and Dogges." Henry VIII. brought from Italy farriers and riding masters. English books of the seventeenth century show much improvement in veterinary medicine and surgery, especially as regards the horse. This is more marked in the eighteenth century, as such writings as "The Farriers' New Guide," "Method of Dieting Horses," "New Treatise on the Diseases of Horses," all by Gibson; "The Anatomy of an Horse," by Snape, farrier to Charles II; also "Anatomy of the Horse," by Stubbs; also writings by Solleysel (1664) were principally of the horse. Probably all, but especially the schools of France and Germany, were established to train veterinarians for the army as well as civil life, consequently the horse was the principal animal considered. So the very schools were founded on account of the interest taken in the horse, and other animals were of secondary importance. St. Bel established the first school in England and stabling for fifty horses and a forge were established at St. Pancras. In the early years of the Royal Veterinary College the horse was the only animal to which much attention was given. In America the progress of veterinary science has entirely depended upon the horse. All of our colleges have been devoted almost entirely to teaching about the horse; cattle, dogs and other domesticated animals were and are considered in a secondary manner. At present there is a tendency to educate along such lines as meat and milk inspection, sanitary methods, cattle diseases, etc., but is there enough of this to support our profession and keep our schools agoing? Without the interest taken in general practice by the young men will we get matriculants for the colleges, as it is the student sent by the general practitioner that keeps up the respective colleges, as each alumnus of a school favors and helps along his *alma mater*? Without the general practitioner will the American, State and the various county societies be kept up? Who will support them? Will interest last and remain up to a progressive pitch depending on strictly scientific lines without the enthusiasm

of the man in general practice? Will we get young men to enter our schools and study veterinary medicine with the preliminary educational requirements as high as they are and only have the Army, Department of Agriculture, a few positions at experiment stations and municipal meat and milk inspection, with the accompanying pay, as, for instance, the B. of A. I.? Consider the insignificant remuneration that a position as assistant inspector pays when we consider the accompanying expenses, or consider the Army, rank and pay. Municipal meat inspector is still worse. Now, what inducements can the veterinary profession offer a young man outside of horse practice that will attract the young men and furnish means to enable them to earn a living and allow of putting away enough to make investments along other lines or to bank. In my opinion, without horse practice our profession faces extinction as an individual profession and will become but a branch of the science of agriculture. You read on every hand that the self-propelled vehicle never will lessen the number of horses used in the cities. It is not a question of the future; it is one of the present. They have and are cutting into the field of usefulness of the horse, at present not to a very serious extent, but still enough to cause city dependents upon the horse to worry and become pessimistic. I do not wish to convey the idea that the auto-wagon will entirely replace the horse. That is not the question; but will it displace a large enough number from the cities to cut down the revenue of the veterinarians and bring the general veterinary practitioners down to the financial level of a veterinarian in the employ of the Government? If so, then we will cease to get men in the colleges, and consequently the doors of the same will close. We will cease to get the financial aid for the societies and in turn legislation will not be protected and our present restrictive laws will be wiped from the statute books and charlatanism will reign again. To sum up, it is my opinion that the profession is directly dependent upon the general practitioners, and in turn the general practitioners are dependent entirely upon the horse.

Very truly yours,

W. A. YOUNG, D. V. S.

THE VETERINARY CORRESPONDENCE SCHOOLS.

BATAVIA, N. Y., July 4, 1907.

Editors American Veterinary Review:

DEAR SIRs:—On page 457 of the REVIEW, just received, I notice a short article entitled "Feeding the Dupes," and which

goes on in a small way to show up some of the damnable methods of this fake concern. It is most gratifying indeed to know that we have such a grand monthly reminder as the REVIEW, for in its rich pages, we find much not only to instruct in but to assist us by words of cheer and encouragement.

In speaking of this fake concern, which is located in London, Ont., I wish to offer just a suggestion, not only of this one particular concern, but all of its kind.

One can hardly pick up an agricultural paper but what he will find one or more notices advertising some of these fake correspondence veterinary schools, offering all kinds of inducements to young men to become *qualified* veterinary surgeons, thereby fitting themselves for the different government positions, etc.

Now, the suggestion is this: Let every practitioner who should see one of these fake schools advertised, take upon himself the responsibility of making himself a committee of one, to communicate with the editor of this particular farm journal, calling his attention to the fact of its dishonest methods, and by so doing we will in the majority of cases be the means of having such fake advertisements weeded out, and in this way we will assist in the advancement of our chosen profession.

As an illustration, I will mention an instance, which came under my observation some time ago. I had noticed in the columns of a farm journal called *The Farm and Fireside*, an advertisement of the Ontario Veterinary Correspondence Institute of London, Ont., setting forth all its advantages, etc., etc. I decided, as I have above suggested, of making a committee of myself to get into correspondence with the publishers of this paper and to endeavor to find out if they catered to this sort of advertising, and also, if possible, to endeavor to have this particular one stricken from its pages. The reply I received from this journal was most gratifying indeed. They not only stated that they wished, in fact it was their aim, to publish only such advertisements as were commendable and clean and that they had discontinued the advertisement, and very courteously thanked me for calling their attention to the facts.

The fact that this paper, which has a very large circulation, dropped this advertisement like a "hot coal," so to speak, goes a good way to show to the veterinary profession and its followers that *The Farm and Fireside* stands ready and willing to assist them in their efforts for a higher standard of education and also

stands ready to assist in stamping out fakeism and quacking in all its forms.

So, I wish to repeat to my brother practitioners to *get busy* and stop this kind of adverting. We can do it if we only will devote just a little time with the pen.

Very respectfully, N. N. LEFLER, D. V. S.

THE PATHOLOGY OF LAMINITIS.

TORONTO, CANADA, June 12, 1907.

Editors American Veterinary Review:

DEAR SIRs:—The pathology of laminitis as is now generally accepted, in Canada at least, has always from a physiological standpoint appeared to me to be not quite definite enough, and careful study has supplied me with some data on which my theory rests. I am now speaking of laminitis caused by an over-feed of unsuitable fodder, or which might be called dietetic causes, the laminitis caused by concussion or over-driving being comparatively easy to account for.

Data.—(1) By experiments performed on living animals, chiefly the dog, it has been established that moderate stimulation of the splanchnic nerves and solar plexus results in hyperæmia of the mesenteric blood vessels, but that over-stimulation results in anæmia of the aforesaid vessels and active hyperæmia of the peripheral circulation (*i. e.*, the skin, extremities, etc.)

(2) Also that in the dog, at least, over-stimulation of the above nerves causes a rise of temperature and throbbing and engorgement of blood vessels of the feet.

I may say that I was privileged to see the above experiments performed on an anæsthetized dog, the stimulus used being the electrical.

(3) That the foot, horny box, sensitive structures, blood vessels, etc., are part and parcel of the skin, corresponding respectively to the epidermis and dermis.

These facts being established, supposition commences, but it seems reasonable to conjecture, that the excessive amount of, or unsuitability of, the ingested foodstuffs might cause (after preliminary hyperæmia of the mesenteric vessels, as shown by the rigors ushering in an impending attack) over-stimulation of the splanchnics with consequent hyperæmia of the peripheral circulation, in which the blood vessels of the feet would be included. It

is also fair to suppose that from their dependent position, the vessels of the feet would suffer most and would take longer to regain their normal tone, thus establishing active congestion, which is the first step of inflammation, as we all know.

Very truly yours, C. G. SAUNDERS, V. S.

COLLEGE COMMENCEMENTS.

NEW YORK STATE VETERINARY COLLEGE.

At the graduating exercises of this college, which took place in connection with the other schools of Cornell University in June, the following gentlemen were awarded the degree of D. V. M. (Doctor of Veterinary Medicine): John Robert Burns, Ithaca; George Rowley Chase, Warsaw; William Lowellyn Clark, Ithaca; Fred Everett Cleaver, Odessa; Walter Kingman Cogswell, Etna; Robert Neil Gordon Darby, Fort Plain; John Bragg Drew, Ithaca; D. K. Eastman, Woodsville, N. H.; Charles Rudd Eno, Pine Plains; James Nathan Frost, North Evans; Walter E. Frink, De Ruyter; Walter Levi Gilbert, Durham; Arthur Thomas Gilyard, Seymour, Conn.; Bradford Hyatt, Ithaca; Arthur Raymond Keith, Oakland, Cal.; Ralph Floyd Knight, Mathias; Watson Lewis, Ithaca; Walter Gould Morehouse, Briarcliffe, Mass.; William Seymour Newman, Ithaca; Joseph Vit Prucha, Cleveland, Ohio; Vaughn Wisley Rood, Etna; Vern Adolphus Sharp, Ithaca; Thomas Sheldon, Poughkeepsie; Charles Goff Thompson, Little Falls; Harris Baker Tillou, Elma Center; Clarence Adelbert Town, Syracuse; James Garfield Wallace, Batavia; Robert Eugene Watkins, Ithaca; Cassius Way, B. Agr., A. B., Giliad, Conn.; Byron McNeil Weller, Geneseo; Frederick Cornelius Willson, Ithaca; Frederick William Wood, Berkeley, Cal.

The H. K. White prizes in veterinary science were awarded as follows: First prize, to Vaughn Wesley Rood; second prize, to Harris Baker Tillou.

"I FIND some grand points and thoughts from a practical standpoint in the REVIEW, and wish you every success."—(A. N. Lawton, V. S., Broadhead, Wis.)

SOCIETY MEETINGS.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

FORTY-FOURTH ANNUAL MEETING AT KANSAS CITY, MO., SEPTEMBER 10, 11, 12, 13, 1907.

Headquarters.—Coates House, Eleventh Street and Broadway. (European plan, \$1 and up per day; American plan, \$2.50 and up.)



HEADQUARTERS OF A. V. M. A., COATES HOUSE, ELEVENTH STREET AND BROADWAY.

Other Hotels.—The Baltimore, Eleventh and Baltimore, four blocks from meeting place (European plan, \$1.50 and up); The Sexton, 15 West Twelfth street, four blocks from meeting place (European plan, \$1 and up); Hotel Washington, Twelfth and Washington, three blocks (European, \$1 to \$2); The Century, 306 West Twelfth (European, \$1 and up); The Savoy, corner Ninth and Central, two blocks (European, \$1 and up); The Brunswick, Eleventh and Broadway, one block (American, \$2 and up); Hotel Convention, Twelfth and Broadway, two blocks (American, \$1.25 to \$1.50); Hotel Windsor, Eleventh and Wyandotte, two blocks (European, 75 cents and up). The Local Committee will have a list of smaller hotels and boarding-houses

in the vicinity of the meeting place in which accommodations may be had if desired. Reservations should be made in advance by writing to the hotels, which will send diagrams with prices, or by writing to Dr. S. Stewart, 1330 East Fifteenth street, K. C., who will give each request prompt attention.

Place of Meeting.—The sessions will be held at the New Casino, 1023 Broadway, in the same block with the hotel headquarters. Take Observation Park Car (surface line) at Union Depot, for the meeting place and headquarters.

OFFICERS AND COMMITTEES, 1906-07.

President—James Law, New York.

Vice-President—J. G. Rutherford, Canada.

Vice-President—Louis A. Merillat, Illinois.

Vice-President—W. T. Monsarrat, Hawaii.

Vice-President—E. B. Ackerman, New York.

Vice-President—Hans Jensen, Nebraska.

Secretary—Richard P. Lyman, Connecticut.

Treasurer—George R. White, Tennessee.

Librarian—W. L. Williams, New York.

Executive Committee—The officers *ex officio* and W. H. Dalrymple, Louisiana (chairman); M. H. Reynolds, Minnesota; Roscoe R. Bell, New York; S. Brenton, Michigan; W. L. Williams, New York.

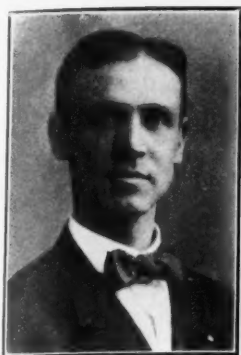
Finance—Thomas Bland, Connecticut (chairman); C. E. Cotton, Minnesota; Robert W. Ellis, New York.

Publication—C. J. Marshall, Pennsylvania (chairman); A. M. Farrington, District of Columbia; E. M. Ranck, Mississippi; J. B. Paige, Massachusetts; R. P. Lyman, Connecticut.

Intelligence and Education—Leonard Pearson, Pennsylvania (chairman); D. Arthur Hughes, Illinois; M. H. Reynolds, Minnesota; George R. White, Tennessee; Adolph Eichhorn, District of Columbia.

Discases—V. A. Moore, New York (chairman); A. D. Melvin, District of Columbia; L. A. Merillat, Illinois; C. H. Higgins, Canada; J. R. Mohler, District of Columbia.

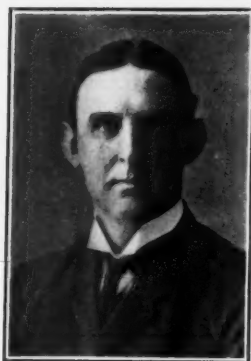
Resolutions—S. Stewart, Missouri (chairman); A. Peters, Massachusetts; J. L. Robertson, New York; W. H. Lowe, New Jersey; M. E. Knowles, Montana.



VICE-PRES. E. B. ACKERMAN.



VICE-PRES. L. A. MERILLAT.



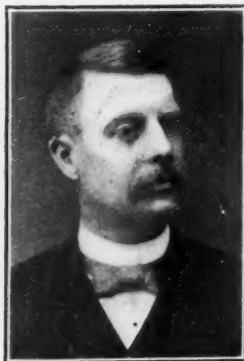
VICE-PRES. W. T. MONSARRAT.



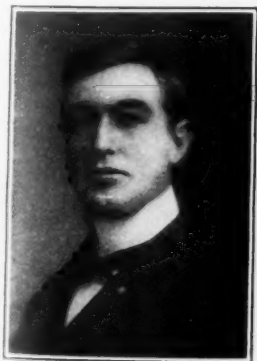
VICE-PRES. H. JENSEN.



PRESIDENT JAMES LAW.



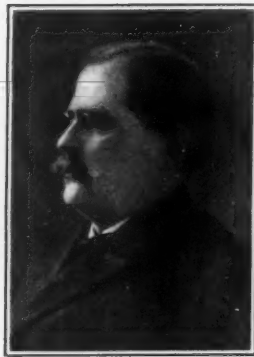
VICE-PRES. J. G. RUTHERFORD.



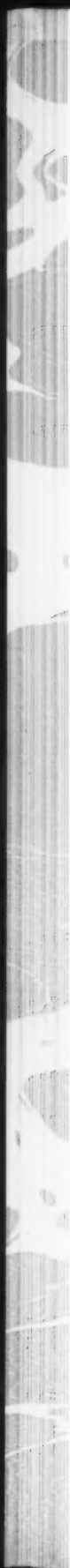
TREASURER G. R. WHITE.



SECRETARY R. P. LYMAN.



LIBRARIAN W. L. WILLIAMS.



Necrology—George H. Berns, New York (chairman); A. H. Baker, Illinois; Wm. Dougherty, Maryland; E. L. Quitman, Illinois; J. E. Ryder, New York.

Army Legislation—J. P. Turner, District of Columbia (chairman); T. Earle Budd, New Jersey; A. S. Cooley, Ohio; J. H. McNeil, Iowa; W. H. Kelly, New York.

Association of Faculties—Charles E. Cotton, Minnesota (chairman); George H. Berns, New York; John J. Repp, District of Columbia.

Local Committee of Arrangements—S. Stewart (chairman), H. B. Adair, L. R. Baker, F. F. Brown, B. F. Kaupp, A. T. Kinsley, R. C. Moore, G. B. Nicholas, C. J. Sihler, A. Trickett.

MEAT INSPECTION AND SPECIAL EXHIBITS.

Readers will note that the morning of Thursday, Sept. 12, will be devoted to a visit to the Armour Packing Plant. Members of the Association, also ladies and visitors, are invited by the Company to a tour of the establishment to witness the process of handling, curing and preparing meat and meat products. Every facility will be afforded throughout the various departments for scrutinizing the methods and sanitary conditions under which the products are made ready for market.

The Armour Company have arranged to serve a luncheon to their guests in their commodious Office Building during the noon hour.

Through the efforts of the Local Committee, Dr. Louis R. Baker, Chief of the U. S. Inspection Force at Kansas City, will have charge of a collection and display of an extensive exhibit of pathological specimens obtained in the routine of Federal inspection. This display, on exhibition at the Armour Plant, will provide an excellent opportunity to become familiar with both the rare and common lesions of disease in food-producing animals.

PRELIMINARY MEETINGS.

Monday, Sept. 9.—10 A. M., Missouri Valley Veterinary Association; 10 A. M., Missouri State Association; 2 P. M., Executive Committee; 4 P. M., Publication Committee; 8 P. M., Association of College Faculties and Examining Boards.

PROGRAM.

First Day, Tuesday, Sept. 10, 1907.

8.00 A. M.—Meeting of Executive Committee.

10.00 A. M.—Address of welcome, Hon. Henry M. Beardsley,
Mayor of Kansas City.

Response to address of welcome.

President Law's address.

Roll call.

Submission of minutes of previous meeting as presented in annual report and in the records kept by the Secretary.

Unfinished business.

Report of Executive Committee.

Admission of new members.

Reports of regular committees: Intelligence and Education (to include an outline of the status of the veterinary colleges and the discussion by Dr. D. Arthur Hughes of what the several States are doing for the furtherance of veterinary intelligence and education; Diseases (short committee report and individual reports as follows: "Some Principles of the Newer Pathology in Their Application to the Control of Disease," V. A. Moore; "Dermal Mycosis in Horses," A. D. Melvin and J. R. Mohler; "The Disposal of Horses Affected With Occult Glanders," L. A. Merillat); Finance; Publication; Local Arrangements; Necrology; Resolutions.

12.00 M.—Adjournment.

2.00 P. M.—Association reassembles.

Reports of special committees (Army Legislation, Association Seal).

Report of Secretary.

Report of Treasurer.

Report of Resident Secretaries.

Discussion of Reports.

Election of Officers.

5.00 P. M.—Adjournment.

8.00 P. M.—Reception to all members and visitors at the New Casino.

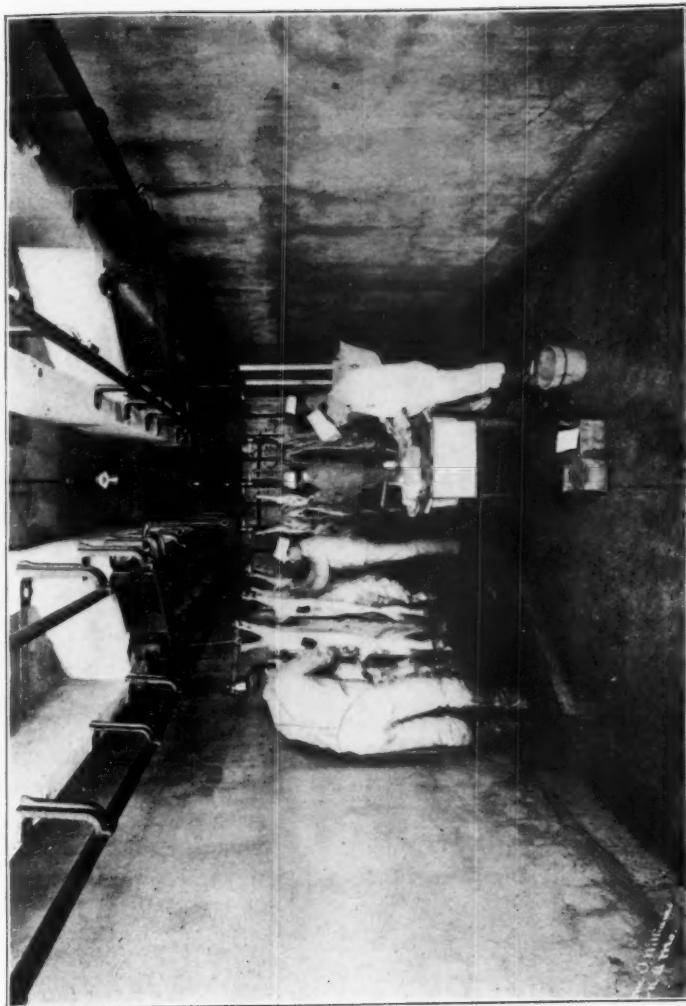
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Second Day, Wednesday, Sept. 11, 1907.

- 8.00 A. M.—Executive Committee.
 10.00 A. M.—Association assemblies.
 Reports of committees.

PAPERS AND DISCUSSIONS.

1. "Intestinal Obstructions of the Horse"—A. H. Baker, Chicago, Ill.
2. "Rabies as Expressed in the Recent Connecticut Epidemic"—G. W. Loveland, Torrington, Conn.
3. "John Smith and His Misfortunes"—A. Liautard, Paris, France.
4. "The A. V. M. A. as an Educator"—E. M. Ranck, Natchez, Miss.
5. "The Place of Veterinary Medicine in State Education"—D. Arthur Hughes, Chicago, Ill.
6. "Observations on Veterinary Education and Practice in Europe"—P. A. Fish, Ithaca, N. Y.
7. "The Effect of the Tuberculin Test Upon Lactation"—S. H. Gilliland and E. L. Cornman, Marietta, Pa.
8. "Reminiscences of Bovine Tuberculosis in Massachusetts"—J. F. Winchester, Lawrence, Mass.
9. "Tuberculous Infection Through the Alimentary Canal"—John Reichel and M. P. Ravenel, Philadelphia, Pa.
10. "Preventive Medicine as Applied in the Army"—L. E. Willyoung, officially representing the U. S. Army, Fort Sill, Okla.
11. "The Veterinarian and the National Guards"—T. Earle Budd, Orange, N. J.
12. "Anthrax Vaccines"—R. R. Dinwiddie, Fayetteville, Ark.
13. "The Agglutinating and Precipitating Powers of Glandered and Non-Glandered Blood Serum in Diagnosis"—Walter J. Taylor, Ithaca, N. Y.
14. "Infectious Ulcerations of the Lips and Legs of Sheep"—M. E. Knowles, Helena, Mont.
- 5.00 P. M.—Adjournment.
- 8.00 P. M.—Association reassembles.
 Reports of Committees.
15. "Tumors"—A. T. Kinsley, Kansas City, Mo.
16. "Municipal Milk Inspection in the South"—C. A. Cary and Ward Giltner, Auburn, Ala.

17. "Milk as Affected by Stable Practices and Subsequent Exposures"—M. H. Reynolds, St. Anthony Park, Minn.

18. "Stable Ventilation from a Clinical Standpoint"—G. A. Johnson, Sioux City, Iowa.

10.00 P. M.—Adjournment.

Third Day, Thursday, Sept. 12, 1907.

9.30 A. M.—Members and visitors (including ladies) visit the Armour Packing Plant.

12.00 Noon.—Luncheon at the Plant.

2.00 P. M.—Association reassembles.

Reports of Committees.

19. "Pertaining to Meat Inspection"—John R. Mohler, Washington, D. C.

20. "Sentiment as a Factor in Meat Inspection"—S. Stewart, Kansas City, Mo.

21. "My Experiences In and With the U. S. Bureau of Animal Industry"—Richard Ebbitt, Grand Island, Neb.

22. "Notes on the Surgical Relief of Roaring"—W. L. Williams, Ithaca, N. Y.

23. "Practical and Applied Surgery"—C. C. Lyford, Minneapolis, Minn.

24. (Subject to be announced)—J. A. Couture, Quebec, Canada.

10.00 P. M.—Adjournment.

Fourth Day, Friday, Sept. 13, 1907.

9.00 A. M.—Clinic at the Kansas City Veterinary College Amphitheatre, 1336 East Fifteenth street.

Quite a variety of operations are being arranged for, among which may be mentioned: Resection of the Plantar Aponeurosis, resection of the lateral cartilage, stringhalt operation, bog spavin, oöphorectomy of cattle, dental operations, and many of daily practical utility.

The following well-known surgeons have consented to operate, or their acceptances are daily expected by the committee: Drs. W. L. Williams and George H. Berns, New York; George R. White, Tennessee; L. A. Merillat, Illinois; T. Bent Cotton, Ohio; C. C. Lyford and Charles E. Cotton, Minnesota; J. S. Anderson and Peter Simonson, Nebraska; J. H. McNeil, Iowa, and others.

12.00 Noon.—Luncheon at the College (ladies included).

1.30 P. M.—Clinic continued.

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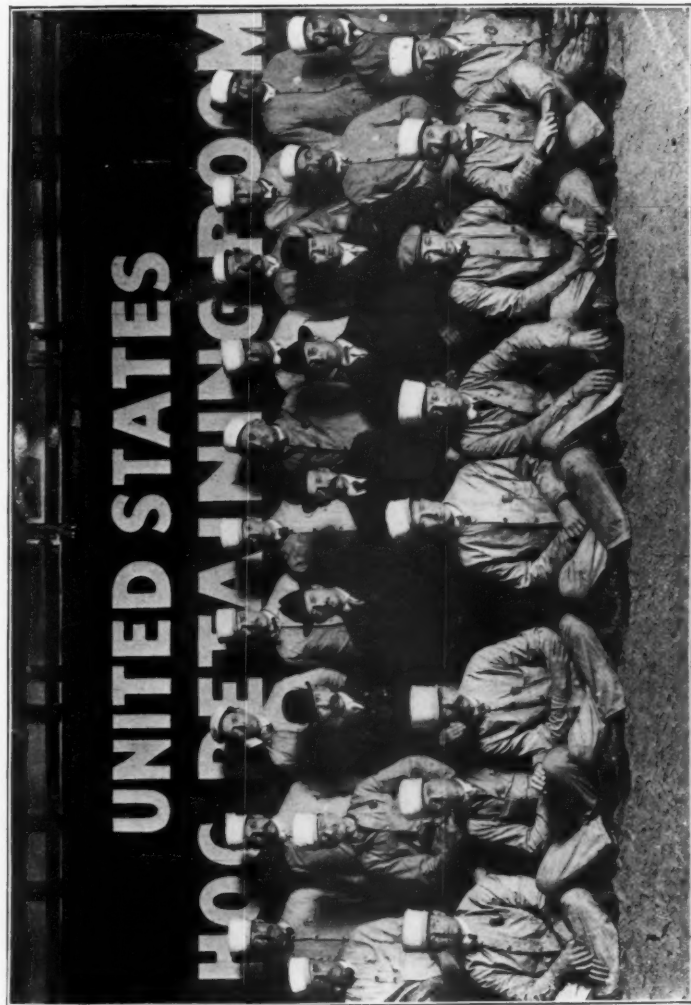
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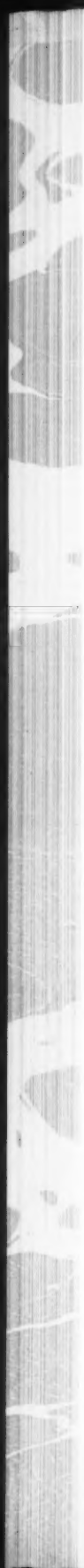
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GROUP OF FEDERAL OFFICERS ON DUTY AT THE PLANT OF THE ARMOUR PACKING COMPANY, KANSAS CITY, Mo.



PROPOSED AMENDMENTS TO BY-LAWS.

There are offered three amendments to the By-Laws that will come up for consideration during this meeting.

To amend Section 1, Article V., by adding the words "Committee on Legislation," these to be placed between lines six and seven of said section. (Signed) W. HERBERT LOWE.

To amend Section 2, Article V., by adding a new section between the present sections 3 and 4, this to read as follows: "It shall be the duty of the Committee on Legislation to use its best efforts to secure the enactment or defeat of such legislation as the Association directs, and as ordered by the President." Signed W. HERBERT LOWE. (Note: This changes the special Committee on Army Legislation to a Committee on General Legislation.)

To amend Section 2, Article VI., by changing the last clause to read as follows: "The provisions shall include the graduates of former two-year schools that have maintained the three-year course for the last five years." Signed W. H. DALRYMPLE and G. R. WHITE.

SOCIAL FEATURES.

The Local Committee has endeavored to arrange an entertainment for the social enjoyment of visitors and friends as well as for recreation for the members. The following has been outlined to occupy the days of convention week.

Tuesday—2 P. M., ladies' carriage drive to points of interest. 8 P. M., reception at the New Casino, 1023 Broadway, to all members and visitors.

Wednesday—10.30 A. M., ladies tour the shopping districts. 2 P. M., trolley party for ladies and families of members. 8 P. M., ladies take a trip to Electric Park, or attend evening session.

Thursday—9.30 A. M., members and visitors (including ladies) are invited to visit the Armour Packing Plant. This excursion will occupy the place of the morning session and will furnish a few hours of relaxation and recreation. 12 Noon, luncheon will be served in the offices of the Armour Plant as guests of the Company. 2 P. M., ladies' theatre party. 8 P. M., Annual Association Banquet.

Friday—10 A. M., ladies' carriage drive, arriving at the Kansas City Veterinary College for a luncheon at 12 Noon. 2 P. M., bird's-eye view of Kansas City. 8 P. M., an evening at Electric Park.

Saturday—9 A. M., a trolley trip to Fort Leavenworth or seeing the city by tally-ho or carriage.

THE TRIP TO KANSAS CITY.

In order that those contemplating the trip to Kansas City may have the rare opportunity of journeying together, so adding materially to the enjoyment of the annual outing, special schedules have been compiled as to include two large sections of the country. Itineraries have been compiled by Secretary Lyman embracing, first, that section north of and including Pennsylvania, west to Chicago, and, second, including the territory from Minnesota to Missouri. These itineraries will be published in the official program, and may be obtained upon application to the Secretary.

Secretary Lyman has the following to say regarding the routes: "After carefully considering the various routes, and at-



KANSAS CITY VETERINARY COLLEGE.

tempting to more fully meet the needs of the majority, it is suggested that members and visitors from Eastern points use the New York Central lines to Chicago and thence on to Kansas City via the route suggested by the veterinarians of Chicago, viz., C., M. & St. Paul Railway. The appended schedule enables all to arrive in Chicago in season to travel onward with the Chicago delegation. Tickets should be purchased from starting points through to Kansas City, via Chicago, and thence over the C., M. & St. Paul R. R. By adopting this plan the transfer of baggage

and sleeping car accommodations in the train leaving Union Station, Chicago, at 6 P. M., Monday, Sept. 9, can be arranged for by corresponding with Dr. A. H. Baker, 2537 State Street, Chicago, the latter having kindly offered to take charge. It is hoped that many will avail themselves of this arrangement and insure its success. *Come and tell others to do so."*

CALIFORNIA STATE VETERINARY MEDICAL ASSOCIATION.

The meeting was called to order at the Key Routs Inn, Oakland, by President Browning, June 12, at 2.30 P. M. There were nineteen members and three visitors present.

As the Secretary was not present, the roll call and the reading of the minutes of the previous meeting were dispensed with and Dr. C. M. Haring was appointed Secretary *pro tempore*.

The President called for the report of the Committee of Examiners of the Society.

Dr. H. Spencer stated that as the Secretary was absent and as the Board had been unable to meet, no report was ready.

Dr. Archibald: The Society should have a different system for application for membership. There is much confusion in handling applications by the Board of Examiners. Applications, according to the by-laws, should be reported at the first meeting following the date on which they are made.

Dr. H. Spencer: The trouble is not the fault of the Board of Examiners or the way the books are kept, but is due to the absence of the Secretary of the Society.

Dr. Archibald: It is up to the Board of Examiners to report on applications. The presence of the Secretary is not necessary. They neglect to report and a large number of members are kept out of the Society or are for a long time on the waiting list.

President Browning suggested that duplicate applications be sent to the various members.

Dr. Archibald said that was the Secretary's duty. He suggested that the chairman instruct the Board of Examiners (those members who are present) to hold an immediate session and report.

A five-minute recess was declared.

The Committee of Examiners reported favorably on the membership application of Dr. J. A. Hill, of Alameda. A motion was made and carried that the report be adopted.

Next in order was the report of the Judiciary Committee. Dr. Browning explained that no committee had been appointed because he had been waiting for the passage of the new law regulating the practice of veterinary medicine. He stated that he had selected the committee and would announce it later on in the meeting.

Admission of New Members—The Society went into an executive session and Dr. A. J. Hill, of Alameda, was unanimously elected a member of the Society.

Reading of Papers—

A CASE OF HODGKIN'S DISEASE IN THE HORSE.

By THOMAS W. HEALEY, M. D. C., San Jose, Cal.

"Some months since I was consulted by a client with reference to a thoroughbred mare of considerable notoriety, who had developed a rather large tumefaction in the anterior pectoral region. As described by the gentleman, the condition had steadily increased in size from its first inception, which had been manifest about a month prior to this consultation. The owner was a Southern gentleman, who at one time was thought to possess a very enviable reputation as a veterinarian, although unqualified. After trying various medicinal preparations with unsatisfactory results, he gave the matter up, acknowledging that the pathological conditions were too obscure for his detection.

"The patient being in a remote district of the county, and after hearing the history of the case, with such details as he was enabled to relate, I concluded that it was a common case of pre-pectoral pyogenic infection, or, vulgarly, 'swell breast,' which is quite prevalent in this section. I therefore recommended that the enlargement be blistered, and upon the first indication of a determination of pus that the same be freely liberated. Two weeks later I was notified that the tumefaction was larger and harder, but neither feverish nor painful to manipulation. This feature being rather of a surprise to me I determined to visit the patient myself. I found her to be a remarkably fine type of the thoroughbred strain. She was in somewhat of a debilitated condition, about nine years of age, and weighed 950 pounds. Examination revealed an enormous hard, non-inflammatory, painless tumefaction in the anterior pectoral region. It was hyperplastic in its nature, of a rather uniform outline. The temperature was normal, pulse about 50, respiration a trifle rapid, visible mucous membranes inclined to be pale, the appetite was good, the bowels were regular. On compelling the patient to move she exhibited

a peculiar awkwardness of gait, due evidently to the immense swelling of the anterior pectorals, which I now determined to explore in hopes of finding pus, notwithstanding its non-inflammatory condition and the absence of thermic systemic derangement. After proper preparation of the skin I proceeded to incise the tumor, continuing down through its thickened wall for at least ten inches without the slightest manifestation of pain from the patient, but beyond this distance she flinched very perceptibly.

A careful search for a pyogenic center or the location of pus in any quantity was unsuccessful. I now determined that this immense hyperplasia must be due to another cause than that of a pyogenic focus, and directing my examination along the chains of such lymphatic glands as could be palpated I discovered that several of them were somewhat enlarged, and this was especially true of the submaxillary, which, the owner informed me, was the first manifestation of disorder that had attracted his attention. Upon auscultation and palpation of the thoracic region I found slight evidence of hydrothorax, but not to an alarming extent.

"I prescribed iodide of potassium and liquor potassii arsenitis, to be given alternate weeks. Two weeks later I learned that the patient was in every way worse, being very weak and manifesting marked dyspnoea, but it was not until another week had passed that I saw her again, and then her symptoms were extreme weakness, difficult breathing, accompanied by great dilatation of the nostrils and heavy heaving of the flanks. An examination of the thorax revealed that cavity to be at least three-quarters full of fluid, forcing the lungs upward. The temperature I found to be 102° F., pulse 74, rather small and rapid. The appetite, however, continued good and the bowels regular. The eyes were rather prominent, very clear, and their mucous membranes of a yellowish white. There was no oedema of the inferior pectoral region or of the dependent part of the abdomen. The enlarged breast presented the same characteristics that had prevailed from the first. The submaxillary lymphatic glands and the superficial and deep inguinals had apparently increased in substance. She was steadily losing flesh, notwithstanding her keen appetite and the most nourishing food. Up to this time I had hesitated to give my diagnosis, but I now told the owner what I considered to be the ailment, and also gave an unfavorable prognosis. My diagnosis was *lymphadenoma*, or *Hodgkin's disease*. I recommended the destruction of the animal to save

further unnecessary suffering, which met with the owner's hearty approval. I did not attempt thoracentesis, for I was satisfied no good could be accomplished by it and great prostration and probably immediate death would follow, leaving a reflection that under all such circumstances is, to say the least, unpleasant.

"Destruction and post-mortem was held the day following. When the shoulder and ribs were removed there was presented a very interesting sight. The thoracic cavity was two-thirds full of a pale reddish serum, the lungs being only about one-half their normal size. One-half of each lung had been submerged so long that these sections were completely collapsed and adaelectatic. The pleural walls were much thickened and presented numerous growths of adenoid proliferations, the pericardium was about one inch thick, the heart was quite normal in appearance, the pre-pectoral lymphatic glands enormously enlarged, and each chain was quite symmetrical throughout their entire length, extending almost to the heart, with an abundance of hyperplastic tissue around them. Each gland was about 6 inches in diameter and 15 inches in length. They were very white and very dense in texture. The region about the glands presented enormous proliferations of white fibrous tissue, leaving but little space for the passage of functionary organs through the pectoral region, still there was no apparent inconvenience as a result of this overcrowding. The enormous enlargement at the anterior pectoral region was produced by enlarged pectoral glands and 10 inches of white fibrous tissue beneath the skin. This material did not present any signs of an inflammatory nature, being rather non-vascular. The blood in general was inclined to be thin and not particularly dark. The submaxillary lymphatic glands were as large as a hen's egg, other glands of the head and throat were to all appearances normal. The prescapular lymphatic glands were slightly enlarged. The abdominal viscera presented the following conditions: Stomach normal, intestines normal, with the exception of the solitary glands, which were much thickened. The mesenteric glands normal, the sublumbar somewhat enlarged, the deep inguinal and superficial inguinal showed some hypertrophy, other lymphatic glands were normal. The liver was much increased in size and of a grayish brown or yellowish brown color. There seemed to be little nodes of thickened adenoid tissue dipping in from the capsule with occasional infarct. The spleen was grossly enlarged, the capsule thickened and white in color. The malphigian bodies were granular and as

large as a small pea and the capillaries seemed to be enlarged and crowded with white cells. The pancreas normal; ascites was absent. Such large bones as were examined at the medulla showed a reddish, or yellowish-red, marrow, similar to the condition found in leukæmia. It seems that at any point where there is a lymph gland or a lymph-plexus this adenoid hyperplasia may localize.

"The general symptoms of failing health as manifested in this particular case are similar to the conditions attending leukæmia. The particular symptoms of this disease consist in the recognition of the adenoid hyperplasia in the absence of a marked leucocytosis, hence I very much regret that I had not made a microscopic examination of the blood of the patient. The submaxillary lymphatic glands are those usually the first attacked, and hence the disease in the horse might be confounded with glanders. There is, however, no pituitary discharge nor ulcer. The glands are symmetrically enlarged on each side, and a careful search will usually reveal other groups hypertrophied, and with the same uniformity. Such glands as can be palpated should receive critical examination.

"The adenoid hyperplasia in the anterior pectoral region offers very obscure and uncertain symptoms. The enlarged bronchial and mediastinal glands may become so gross as to seriously interfere with the functions of the vagus nerve, causing in cattle disturbed digestion, rumination and tympanites. In horses it causes stertorous breathing, and in carnivora and omnivora a tendency to vomit. In all animals, ordinarily the pressure on cardiac nerves leads to great irritability of the heart, which organ may act with great violence during exertion of the animal. The prominent dyspnœa in advanced stages may be explained by the presence of these thoracic hyperplasix. It has been claimed by some that the urine furnishes some important indications of this disease in its low specific gravity (horse 1.010), and presents a constant acidity, and that there is almost an entire absence of hippuric acid in the urine of the horse. Unfortunately, the urine of this patient was not examined.

"The etiology, as in leukæmia, is not well known. No definite cause can be found in the majority of cases. An accessory cause can sometimes be observed where local irritation gives rise to swelling of the adjacent lymphatic glands, and this progresses on to distinct lymphadenoma.

"Hoping this report may give rise to an interesting and profitable discussion, whereby more light may be thrown on this particular case, I thank you, gentlemen, for your kind attention."

Dr. Fisher: Breast abscesses as a sequel to influenza and from other causes are common in San Mateo, but I have never seen anything like the condition described by Dr. Healey. Could the condition be caused by refuse from the quicksilver mine?

Dr. Healey: I regret that a microscopic examination was not made, so that we could differentiate between lymphadenoma and leukæmia. The etiology of Hodgkin's disease is not known, and it is impossible to differentiate between this disease and other forms of leukæmia without a microscopic examination. It may be that the trouble was caused by refuse from the mines.

Dr. Weschcke, M. D.: We are all at sea as to the etiology of Hodgkin's disease in the human being. We know that it is a progressive malignant anæmia. There is an excess of white corpuscles in the blood and many degenerating red corpuscles. Quicksilver ores usually carry arsenic. Arsenic is extensively used as a remedy for Hodgkin's disease in the human, therefore I do not think that the refuse from the mine was an etiological factor. The lack of a microscopic examination is greatly to be regretted. The condition described in the horse, it would seem, should be attributed to some preceding profound systemic change, such as tuberculosis or pneumonia. It is unfortunate that no more interest is shown by the medical profession in comparative medicine. The study of such cases as the one described might throw much light upon many obscure diseases of human beings.

Dr. Archibald: The previous history of some debilitating disease, like influenza, might have caused the condition. It might have brought on pernicious anæmia, to which the tumors and abscesses were secondary. A microscopical examination of the blood would, perhaps, have thrown much light on the trouble.

Dr. Healey: The animal had been a racehorse and in good health up to six weeks previous to the first examination. The first thing noticed was a small lump on the anterior pectoral region. This was blistered with biniodide of mercury.

Dr. Longley: Nine-tenths of all the racehorses are "doped." A great variety of medicines are used, and could not treatment of this kind have resulted in this condition?

Dr. Archibald said that excessive drugging and the administration of various kinds of "dope" predisposed the body to these degenerations.

DISCUSSION OF MAMMITIS.

A discussion of mammitis in the cow, which was the principal topic at the meeting at Fresno, was taken up.

Dr. Longley: When the meeting adjourned at Fresno treatment of mammitis was being discussed. Dr. Bedsold and I have given up the astringent treatment, viz., the use of white lotion, etc., and have gone back to the use of camphorated oil and laxatives. In one case we had good results in the use of lard and turpentine.

Dr. H. Spencer attributed the origin of mammitis to several causes. He said that the fullness of the udder and its size in some animals rendered it particularly liable to be bruised when the animal lies down or that it might be bruised in traveling and irritation set up; that there was a stasis of blood in the glands and that extensive inflammation resulted. Another form of the disease, he said, was infectious. The infection is derived by way of the teat opening and is carried from one cow to another by the hands of the milker and vile litter. He related the experiences of Dr. Fox at Sacramento, in which an extensive outbreak (in a large dairy) was apparently of the infectious type. In the treatment of mammitis he laid great stress on the importance of suspending the udder and advised the use of warm fomentations. He said that massage was very helpful and of more value than the oleaginous applications which usually accompanied massage treatment.

Dr. Creeley: Veterinarians should understand the use of the microscope. Any method that does not take into consideration the cause and nature of the infection cannot expect the best results. It is important to find out whether the disease is tubercular or not. Tuberculosis of the udder is not uncommon, and is frequently mistaken for other forms of mammitis. The only way to distinguish is by microscopical examination. As to the treatment of mammitis, he said that the fluid extract of *phytolacca* was formerly much used, both externally and internally, and that it was very useful. Belladonna and camphor are all right, but will reduce the amount of milk. Potassium iodide and other iodide compounds may be used, but they will dry up the cows.

Dr. Weschcke compared traumatic mammitis in animals and in human beings, and he said: "We fight inflammation by external lotions and thus prevent caking of the gland. Be chary in the use of belladonna and camphor. We do not use the lance

if it can be helped. The use of a catheter or sound is impossible in the human subject, but in the cow important results might be obtained. A frequent result of traumatism of the mammary gland is cancer. In the treatment of inflammation of the nature of mammitis rest and antiphlogistic treatment, externally and internally, are the main things.

Dr. Sullivan said that he had used a preparation composed of ichthiol 20 per cent. and lanolin 80 per cent. with good results. He believed that the oleaginous treatment rather than the astringent should be used. He thought that concrete stable floors were conducive to the trouble.

Dr. Browning said that he had had charge for several years of a very large dairy, where not only the stable floor, but also the corral, measuring over an acre in extent, were of cement, and that he had not seen a single case of the disease there.

Dr. Archibald argued that the disease was chiefly due to infection and that the only rational treatment was to use antiseptics.

Dr. Hill had had good success with the use of turpentine and oil, and strongly advocated a reduction in the feed of the affected animals.

Several others took part in the discussion, and it was finally postponed until the next meeting.

NEW BUSINESS.

Dr. Archibald: The new law regulating the practice of veterinary medicine in this State should be enforced, and it is the business of the State Board of Veterinary Medical Examiners to do so. But it is up to this Association to help all that it can.

Dr. H. Spencer: The Board of Examiners cannot do anything without funds. I wish to make a qualified subscription to help in the enforcement of the law. If any considerable number of members will subscribe a like amount the firm of Spencer & Healey will give \$50.

Dr. Archibald spoke of the work of the last Prosecuting Committee of the Society. He said that the money they used was well expended and that the number of quacks in the State was greatly reduced. He said that he would give \$50.

Dr. Longley, of the firm of Longley & Betsold, said that they would contribute \$50.

Dr. Creeley: Every action of the Prosecuting Committee created dissatisfaction. The motives of Dr. Archibald and the rest

of the committee were entirely unselfish. More were prosecuted around the Bay because the expense was less, but we tried to be just to all. We got seven or eight convictions. Each county should contribute to a fund of its own.

Dr. H. Spencer: Prosecuting in each county won't work. We should try one or two prosecutions in various places among the most prominent quacks, and the rest will quit. It don't matter so much where the prosecutions are made; the main thing is to raise the money.

Dr. Creeley: The old committee published a pamphlet with the names of the illegal practitioners, which did some good. We were charged with misappropriation of funds, but the fact is that Dr. Archibald has gone into his own pocket for funds to carry on the work.

Dr. Hogarty: Everyone should contribute to this work. The Prosecuting Committee gets abused, and everyone should have a part in the work. Dr. Archibald has worked hard and sincerely.

President Browning then announced the following as a Judiciary Committee: Dr. Longley, of Fresno; Dr. Donnelly, of Oakland; Dr. Othier, of Salinas; Dr. Carroll, of Chico, and Dr. Danielson, of Medara. The announcement of the committee was followed by a general discussion of how to enforce the new law, participated in by nearly every one present.

President Browning asked Dr. H. Spencer to take the chair.

Dr. Browning: Three days after the Governor signed the new law regulating the practice of veterinary medicine the old State Board of Veterinary Medical Examiners met in Los Angeles and issued 35 licenses to practice.

Dr. Browning then read a letter from the Attorney-General, stating that these licenses were void and of no effect. Dr. Browning said that he heartily disapproved of the action of the Board and that he was sorry that the members of the Board were not all present so that the matter could be explained.

Dr. Ryan stated that although he was a member of the Board he was not present at the last meeting. Some money was due him for expenses to attend a meeting at Sacramento, and that if there were any funds left over he did not get any of the money.

Dr. Creeley: The members of the Association have been misinformed regarding this affair. The other members of the Board should be present. I do not care to make any statements until that time. I will see that the old Board are present at the next meeting and that the matter is explained.

Dr. Browning then read the names of the 35 applicants for the licenses which were granted at the Los Angeles meeting.

Dr. Archibald: I move that the Secretary write to the members of the former California State Board of Veterinary Medical Examiners and cite them to appear at the next meeting of this Association and show cause why their names should not be dropped from this Association.

The motion was seconded and carried.

Dr. Archibald: I move that, in view of the opinion given the State Board of Examiners in Veterinary Medicine by the Attorney-General in regard to legality of the State Veterinary Board in issuing licenses to practice to 35 applicants on March 26, 1907, said applicants be denied membership in this Association until such time as they are qualified under the laws of California.

The motion was duly seconded and carried.

A motion was duly carried that the Secretary be instructed to ask, by letter, each member of the Association if he would contribute a stipulated amount, to be put into a fund to be known as the "Prosecuting Fund."

Dr. Archibald moved that the chairman of the Judiciary Committee (Dr. Longley) be authorized and instructed to prepare a voluntary subscription list for prosecuting illegal practitioners and that he have subscription blanks printed and sent to every practicing veterinarian north of the Tahachipi Mountains.

The motion was duly seconded and carried.

A motion was carried that the Secretary *pro tempore* use the \$5 which he had received from Dr. Healey (the membership fee of Dr. Hill) to pay for the room where the present meeting was being held.

President Browning suggested that he be authorized to write to Secretary Eastman to find out if he can attend the meetings of the Association, and if not be authorized to act in his place. There being no objections, Dr. Browning said he would do this.

A motion was carried that an adjourned meeting be held in Sacramento on the week of the State fair. Date and place to be fixed by call of the President.

President Browning appointed as essayists for the next meeting Drs. Hill, Seggsworth and Nielson.

The meeting was adjourned, to meet in Sacramento during the week of the State fair.

C. M. HARING, *Secretary pro tempore*.

NEW YORK STATE VETERINARY MEDICAL SOCIETY.

The meeting for 1907 will be held in New York City on Tuesday, Wednesday and Thursday, Sept. 24, 25 and 26. Secretary Stone has sent out an outline of the program, which is very attractive and should insure a great meeting.

The session for Tuesday will be called to order in the Academy of Medicine, 17 West Forty-third street, at 10 A. M., and the day will be consumed with the business of the society, the reports of committees, and any papers on the program that may be reached. The second day's session will take place in the park of the New York Zoological Society at One Hundred and Eighty-third street and Southern boulevard, easily reached by the subway trains. Dr. W. Reid Blair, member of the State Society, is pathologist and veterinarian of the "Zoo," and through his kindness this day's session is possible among these interesting and educational surroundings. If the weather is pleasant the meeting will be held in the open air; but if disagreeable there are several halls in the park well suited for meeting purposes. While the members are engaged in reading and discussing the papers of the program the ladies will be delightfully entertained in visiting the rare animals of the vast collection, under competent guides, and in sailing upon the lake in the electric launches of the park. At noon the Veterinary Medical Association of New York City will tender the visiting veterinarians and their friends a modest luncheon in the Boat-house Restaurant.

The third day will be devoted entirely to a surgical and medical clinic and will be held in the large new veterinary infirmary of the Fiss, Doerr & Carroll Horse Company, in Bull's Head, Twenty-fourth street, where the best facilities for the conduct of such a clinic ever enjoyed by the society will be at its command. Dr. J. Elmer Ryder is the veterinarian of the company and a member of the Committee of Arrangements of the society. So with earnestness for success, and with the vast clinical facilities furnished by the largest horse mart in the world, it is assured that this feature alone should attract every member to the meeting, while visitors from everywhere are welcome.

The Committee of Arrangements of the State Society are: Dr. Charles E. Clayton, chairman; Dr. George H. Berns, Dr. J. Elmer Ryder and Dr. Roscoe R. Bell. The committee from the City Association to act with the above committee consists of

Dr. Robert W. Ellis, chairman; Dr. E. B. Ackerman, Dr. F. C. Grenside, Dr. W. Reid Blair, Dr. D. J. Mangan and Dr. Theodore A. Keller.

SOCIETY OF THE VETERINARY ALUMNI OF THE UNIVERSITY OF PENNSYLVANIA.

The annual meeting was held June 19 at "The Orchard," the beautiful home of the Philadelphia Athletic Club at Essington, on the Delaware River.

It was one of the most successful meetings which we have ever held. There was not a moment that was not crowded with enjoyment. The principal feature of the afternoon was a base ball game between the class of 1907 and the older alumni. It brought back to many of us our college days, which have long gone by, and aroused our enthusiasm to such an extent that the 1907 boys had to fight hard for the honor of winning the game. After the game time passed pleasantly with tennis, quoits, shuffleboard and other amusements until the business meeting was called at 6 o'clock. The treasury was shown to be in the most flourishing condition since the organization of the society.

Dr. S. J. J. Harger, our historian, told us about each member of the classes of 1891 to 1896. This form of historian's report has been found to be particularly interesting.

On motion, it was decided to re-elect all the officers of the past year, so the Secretary cast the ballot, which resulted as follows:

President—F. H. Mackie, 1889.

Vice-President—A. F. Schreiber, 1888.

Secretary-Treasurer—B. T. Woodward, 1902.

Historian—S. J. J. Harger, 1887.

Executive Committee—W. H. Ridge, 1888; J. W. Adams, 1892, and C. J. Marshall, 1894.

At the close of the meeting D. B. Fitzpatrick, chairman of the Committee on Arrangements, gave us the welcome news that the banquet was awaiting us. The pleasures of our banquet were increased by a musical and humorous entertainment. Later we all joined in an original song dedicated to our beloved Dean, Leonard Pearson. His response, telling us of the new appropriations which the Veterinary Department had received, of the successful beginning of our new buildings and of the great work planned for the future, raised us all to the enjoyment of a high

degree of optimism. Many of our old friends added to the general pleasures of the occasion, and everyone regretted when the hour came to disperse and return to Philadelphia.

B. T. WOODWARD, V. M. D., *Secretary*.

VETERINARY ASSOCIATION OF THE DISTRICT OF COLUMBIA.

A special meeting of the Veterinary Association of the District of Columbia was held on the evening of June 19. Twenty-three members were present. Drs. G. H. Grapp, R. H. Talty, — — Hungerford and M. P. Smith were elected to membership. The report of the Banquet Committee was received. Several amendments to the by-laws were proposed and discussed. The meeting adjourned at 10.30 P. M. The next regular meeting will be held in the fall, the meetings being discontinued during the summer months.

F. M. ASHBAUGH, D. V. S., *Secretary*.

SCHUYLKILL VALLEY VETERINARY MEDICAL ASSOCIATION.

The meeting was called to order in the Board of Trade Rooms, Reading, Pa., by President Kohler, June 10, 1907. Roll-call showed the following members present: Drs. Gruber, Kohler, Huyett, Wehr, Noack, Potteiger and Bieber. Minutes of previous session read and approved.

President Kohler delivered an excellent but brief address.

Dr. Henry A. Schneider, of West Reading, was elected to membership. He is a University man, having graduated last year.

The Secretary read a number of communications.

Dr. Wehr, Chairman of the Committee on Milk and Meat Inspection, urged all practitioners to put forth the greatest efforts possible to improve the system by enlightening the farmer or dairyman upon the subject.

Among the visitors present were Mr. Kenny, representing the West Disinfectant Co., and Mr. Nagle, manufacturer of veterinary and medical instruments.

Meeting adjourned for luncheon and reconvened at 1:30 p. m.

Dr. Noack, of the Committee on Intelligence and Education, spoke of the new meat inspection law passed by the Legislature, and of the State appropriation for veterinary buildings for the

University of Pennsylvania. These buildings are now being erected and when completed the University of Pennsylvania will have one of the best equipped veterinary institutions in the United States.

Dr. Huyett gave a brief report as delegate to the Pennsylvania State Veterinary Medical Association.

The election of officers resulted as follows:

President—Dr. D. R. Kohler.

Vice-President—Dr. Allen Potteiger.

Treasurer—Dr. U. S. G. Bieber.

Secretary—Dr. W. G. Huyett.

Corresponding Secretary—Dr. C. D. Gruber.

Board of Directors—Drs. E. D. Longacre, O. G. Noack and I. C. Newhard.

On motion all the officers were elected by acclamation.

As Dr. Newhard, who was to have presented the subject of "The Treatment of Wounds," was unavoidably absent, and he having failed to send in his paper, the subject was discussed by many of those present.

Dr. Bieber gave an excellent talk on "Laryngitis and Pharyngitis," especially with reference to treatment. Every member present related the treatment with which they had had the greatest success.

The following every-day though often puzzling subjects were taken up and thoroughly discussed by all present: Parturient paresis, glanders (including the mallein test and the agglutination method of diagnosing it), tuberculosis and the tuberculin test, azoturia, tetanus and pulmonary emphysema.

The next meeting will be held at Reading December 18, 1907.

W. G. HUYETT, *Secretary*.

THE MISSOURI VALLEY VETERINARY ASSOCIATION held a brief session, July 8, at Kansas City, Mo., and adjourned to meet in Kansas City September 9, 1907.

NEW (?) HORSE DISEASE.—*Circleville, Ohio, July 6.*—A new disease has appeared among the horses in training at the driving park. There are 27 of them, and all have swollen tongues, covered with a rash and considerable slobber. Two of the trainers have become infected—having frightfully swollen arms and the red rash. It is unknown to the veterinaries here.—(*Cincinnati Enquirer, July 7.*)

NEWS AND ITEMS.

DR. ARTHUR TRICKETT, of Kansas City, made a two-weeks' visit to friends in New York City and vicinity in July.

DR. OTTO EMMITT, of Hiattsville, Kansas, has accepted temporary appointment as Veterinary Inspector with the B. A. I. and is stationed at Kansas City.

DR. E. P. BARNHART, formerly of the Ohio State University Veterinary Hospital, has joined the Bureau of Animal Industry force and is stationed at Kansas City.

DR. J. W. CONNOWAY, of the Missouri State University, visited Kansas City the first week in July. The Doctor has nearly recovered from a serious attack of typhoid fever.

DR. ELMER LASH, Veterinary Inspector B. A. I., Quarantine Division, Englewood, Kans., spent a few days in Kansas City recently to receive treatment for rupture of the right tympanic membrane.

DR. C. J. SIHLER, Kansas City, is taking a long deferred vacation and is visiting his old home at Simcoe, Canada. The Doctor will make a tour of Eastern cities and include the Jamestown Exposition.

GEORGE BOLIN, V. S., of Washington, Indiana, died at Circleville, Ohio, July 11, of locomotor ataxia. He was a graduate of the Ontario Veterinary College and had been a sufferer from the disease which caused his death for over two years.

DR. PIERRE A. FISH, professor of materia medica and physiology at the New York State Veterinary College, is at present in Europe, visiting veterinary colleges and laboratories in various countries. He will return to the States in September.

SECRETARY TAIT BUTLER, of the Association of Veterinary Faculties and Examining Boards of North America, is exerting himself to make the meeting at Kansas City worth while. He believes, and the REVIEW agrees with him, that many educational reforms can be brought about through the proper spirit in this organization.

FRANK WORK, the famous New York road driver, is now 88 years old and takes a spin in a one-man wagon every day. His old trotter "Edward" is alive and in good health at 35 years of age, though he has been on Mr. Work's pension list for a long

time. It is said that in his will the old driver has provided for the care of all his horses so long as they may live.

DR. HUGH THOMASON, of Nashville, Tenn., has resigned an inspectorship in the quarantine service of the Bureau of Animal Industry to accept the position of Chief Petty Officer in the Medical Department of the U. S. Navy and is in charge of the sick bay on the U. S. S. *Alliance*, Culebra, Porto Rico. The Doctor is veterinary inspector of cattle slaughtered for the fleet at that station.

DR. A. T. PETERS, of Lincoln, Neb., was employed as one of a board of experts by the Missouri State Board of Agriculture during the latter part of June to test a dairy herd for tuberculosis. The test showed a large percentage of tuberculosis and confirmed the finding of the State Veterinarian, Dr. Luckey, who had quarantined the herd, and which the owner tried to have released without purifying the herd.

DR. A. G. HOPKINS, who has for a number of years been the capable editor-in-chief of the *Farmers' Advocate*, of Winnipeg, Manitoba, has relinquished his editorial work and has joined the staff of Veterinary Director-General Rutherford, in the Live Stock Division and Health of Animals Branch at Ottawa. During the period of his literary labors Dr. Hopkins did much for the veterinary profession, and his graceful pen will be seriously missed from the pages of the *Advocate*.

BANQUET TO DR. S. H. WARD.—As Dr. Ward has resigned his position as Secretary and Executive Officer of the State Live Stock Sanitary Board of Minnesota and accepted the position of Chief of the Meat Inspection Department of the Dominion of Canada, a few of his friends gave a banquet in his honor at the Merchants' Hotel, St. Paul, June 11, which will probably be long remembered by all present. Deep regret was felt by all present that we were going to lose the Doctor, not only from this State, but also from the United States. The banquet was well attended by many professional friends and also several leading state politicians. Dr. Chas. E. Cotton, of Minneapolis, acted as toastmaster. The following gentlemen responded to toasts: Hon. J. J. Furlong, L. D. Baird, G. A. Babenbrien, John Timpane, Drs. F. D. Ketchum, W. L. Beebe, B. W. Kirby, M. S. Whitcomb, D. D. McDonald, Geo. A. Dallimore, Richard Price, Geo. E. Metzgar and S. H. Ward. Dr. Price, after making an appropriate farewell toast, presented Dr. Ward with a 32nd degree Scottish Rite watch-charm set with a beautiful diamond.

VETERINARY MEDICAL ASSOCIATION MEETINGS.

In the accompanying table the data given is reported by many Secretaries as being of great value to their Associations, and it is to be regretted that some neglect to inform us of the dates and places of their meetings.

Secretaries are earnestly requested to see that their organizations are properly included in the following list :

Name of Organization.	Date of Next Meeting.	Place of Meeting.	Name and Address Secretary.
American V. M. Ass'n.....	Sept. 10-13, '07..	Kan. City, Mo.	R. P. Lyman, Hartford, Ct.
Vet. Med. Ass'n of N. J.....	.....	.....	W. H. Lowe, Paterson.
Connecticut V. M. Ass'n.....	Aug. 6, 1907.....	New Britain..	B. K. Dow, Willimantic.
New York S. V. M. Soc'y.....	Sept. 24, 25, 26..	New York C'y.	G. T. Stone, Middletown.
Schuykill Valley V. M. A.....	Dec. 18, 1907....	Reading.....	W. G. Huyett, Wernersville.
Passaic Co. V. M. Ass'n.....	Monthly.....	Paterson, N. J.	H. K. Berry, Paterson, N. J.
Texas V. M. Ass'n.....	Call Exec. Com.	.....	E. L. Lewis, Waxahachie.
Massachusetts Vet. Ass'n.....	Monthly.....	Boston.....	F. J. Babbitt, Lynn, Mass.
Maine Vet. Med. Ass'n.....	.....	.....	R. E. Freeman, Dexter.
Central Canada V. Ass'n.....	.....	Ottawa.....	A. E. James, Ottawa.
Michigan State V. M. Ass'n.....	State Fair Week	Detroit.....	Judson Black, Richmond.
Alumni Ass'n, N. Y.-A. V. C.....	April, 1908.....	141 W. 54th St.	T. F. Krey, N. Y. City.
Illinois State V. M. Ass'n.....	.....	.....	N. I. Stringer, Paxton.
Wisconsin Soc. Vet. Grad.....	.....	.....	S. Beattie, Madison.
Illinois V. M. and Surg. A.....	.....	Decatur.....	C. M. Walton, Rantoul.
Vet. Ass'n of Manitoba.....	Not stated.....	Winnipeg.....	F. Torrance, Winnipeg.
North Carolina V. M. Ass'n.....	July 2-3, 1908..	Raleigh.....	Adam Fisher, Charlotte.
Ontario Vet. Ass'n.....	Summer, 1907..	Ottawa.....	C. H. Sweetapple, Toronto.
V. M. Ass'n, New York City.....	1st Wed., Oct....	141 W. 54th St.	W. Reid Blair, N. Y. City.
Ohio State V. M. Ass'n.....	.....	Columbus.....	W. H. Gribble, Wash'n C. H.
Western Penn. V. M. Ass'n.....	1st Wed. ea. mo.	Pittsburgh....	F. Weitzell, Allegheny.
Missouri Vet. Med. Ass'n.....	Sept. 9, 1907....	Kansas City..	F. F. Brown, Kansas City.
Genesee Valley V. M. Ass'n.....	January, 1908..	Rochester....	J. H. Taylor, Henrietta, N.Y.
Iowa Veterinary Ass'n.....	.....	.....	H. C. Simpson, Denison, Ia.
Minnesota State V. M. Ass'n.....	.....	.....	C. A. Mack, Stillwater.
Pennsylvania State V. M. A.....	.....	.....	C. J. Marshall, Philadelphia.
Keystone V. M. Ass'n.....	Monthly.....	Philadelphia..	A. W. Ormiston, 102 Herman St., Germantown, Pa.
Colorado State V. M. Ass'n.....	.....	Denver.....	M. J. Woodliffe, Denver.
Missouri Valley V. Ass'n.....	Sept. 9, 1907....	Kansas City..	B. F. Kaupp, Kansas City.
Rhode Island V. M. Ass'n.....	June and Dec....	Providence....	T. E. Robinson, Westerly, R.I.
North Dakota V. M. Ass'n.....	.....	.....	C. H. Martin, Valley City.
California State V. M. Ass'n.....	Mch. Je. Sep. Dec	San Francisco	Chas. Eastman, San Luis Obispo
Southern Auxiliary of California State V. M. Ass'n.....	Jan. Apl. Jy. Oct.	Los Angeles..	J. A. Edmons, Los Angeles.
South Dakota V. M. A.....	.....	.....	E. L. Moore, Brookings.
Nebraska V. M. Ass'n.....	.....	.....	Hans Jensen, Weeping Water.
Kansas State V. M. Ass'n.....	Jan., 1908.....	Manhattan...	Hugh S. Maxwell, Salina.
Ass'n Médécalle Veterinaire Française "Laval".....	1st and 3d Thur. of each month	Lec. Room, Laval Un'y, Mon.	J. P. A. Houde, Montreal.
Province of Quebec V. M. A.....	.....	Mon. and Que.	Gustave Boyer, Rigand, P. Q.
Kentucky V. M. Ass'n.....	Nov. 19, 1907....	Not decided..	D. A. Piatt, Lexington.
Washington State Col. V. M. A.....	Monthly.....	Pullman, Wa.	Wm. D. Mason, Pullman.
Indiana Veterinary Association.....	An'l, Jan., '08..	Indianapolis..	E. M. Bronson, Indianapolis.
Louisiana State V. M. Ass'n.....	.....	.....	E. P. Flower, Baton Rouge.
Twin City V. M. Ass'n.....	2d Thu. ea. mo.	St. P.-Minneap	S. H. Ward, St. Paul, Minn.
Hamilton Co. (Ohio) V. A.....	.....	.....	Louis P. Cook, Cincinnati.
Mississippi State V. M. Ass'n.....	.....	.....	J. C. Robert, Agricultural Col.
Georgia State V. M. A.....	.....	.....	L. C. Willoughby, Experiment
Soc. Vet. Alumni Univ. Penn.....	June, 1908.....	Philadelphia..	B. T. Woodward, Chicago.
Virginia State V. M. Ass'n.....	.....	.....	S. C. Neff, Staunton.
Oklahoma V. M. Ass'n.....	.....	.....	W. H. Martin, El Reno.
Veterinary Practitioners' Club.....	Monthly.....	.....	A. F. Mount, Jersey City.
Vet. Ass'n Dist. of Columbia.....	Last W. ea. mo.	2116 14th St.	F. M. Ashbaugh, Wash., D. C.
B. A. I. Vet. In. A., Chicago.....	2d Fri. ea. mo.	Chicago.....	R. J. Stafford, U. S. Yards.
Arkansas Veterinary Society.....	.....	.....	B. H. Merchant, Little Rock.
York Co. (Pa.) V. M. S.....	Sept. 3.....	York, Pa.....	E. S. Bausticker, York.
Philippine V. M. A.....	.....	.....	R. H. McMullen, Manila.
Montana State V. M. A.....	Oct. 2, 1907....	Helena.....	E. T. Davison, Helena.

PUBLISHER'S DEPARTMENT.

Subscription price, \$3 per annum, invariably in advance; foreign countries, \$3.60; students while attending college, \$2; single copies, 25 cents.

Rejected manuscripts will not be returned unless postage is forwarded.

Subscribers are earnestly requested to notify the Business Manager immediately upon changing their address. Make all checks or P. O. orders payable to American Veterinary Review.

A representative from MAPLEWOOD HACKNEY STUD has called upon every individual reader of the AMERICAN VETERINARY REVIEW this month, and there can be no doubt as to the reception he will get when our readers open the advertising section of the REVIEW at page 18 and behold the beautiful conformation and handsome face of Langton Performer as he trots happily toward them. Surely the picture of this truly beautiful and wonderful stallion will create a strong desire to see, in the life, him and others of his kind that the ideal farm at Attica holds.

Some time ago, after many inquiries as to where Tenaline could be procured in this country, we wrote the London house, Messrs. Willows, Francis, Butler and Thompson, Ltd., requesting them to furnish us the information so that we might answer all inquiries at one time through this department. They replied in June (but too late to reach the July issue) that it is now stocked by Messrs. Schieffelin & Co., 170 and 172 William St., New York, and we hereby answer the several inquiries in regard to it.

STOVAINE in canine work is a boon to veterinary practitioners, due to its non-toxic peculiarity, in contradistinction to cocaine, which it is unsafe to use on the smaller animals.

This excellent preparation comes to the veterinarian packaged in the high-class manner characteristic of the importations of Walter F. Sykes.

In the interests of the widow of a late member of our profession and of those desiring to purchase veterinary books, instruments or appliances, we desire to direct the attention of REVIEW readers to an advertisement appearing in lowest of the spaces used for transient advertisements, opposite this page.



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